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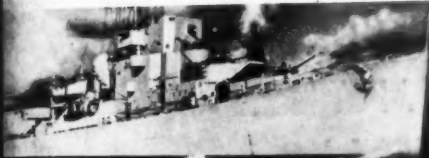
# The Refrigeration Service Engineer

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DETROIT

VOL. 13 NO. 5

★ ★ ★

MAY, 1945



## TO THE AMERICAN PEOPLE:

Your sons, husbands and brothers who are standing today upon the battlefronts are fighting for more than victory in war. They are fighting for a new world of freedom and peace.

We, upon whom has been placed the responsibility of leading the American forces, appeal to you with all possible earnestness to invest in War Bonds to the fullest extent of your capacity.

Give us not only the needed implements of war, but the assurance and backing of a united people so necessary to hasten the victory and speed the return of your fighting men.

*William D. Leahy*  
*Dwight D. Eisenhower*  
*Franklin D. Roosevelt*  
*Admiral*



**CHICAGO SEALS  
GO ON THE SHAFT  
WITH EASE AND SPEED  
AND CUT DOWN "CALL BACKS."  
THAT'S HOW THEY PUT MORE  
PROFIT IN EVERY JOB**

**MODERN  
DESIGN**



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REPLACEMENT SEAL**



**ONLY CHICAGO VALVE PLATES  
HAVE REPLACEABLE VALVE SEATS.  
SIZES FOR MOST COMPRESSORS.**

*Sold By Jobbers*

**CHICAGO SEAL CO.** 20 N. WACKER DR., CHICAGO 6, ILL.

THE REFRIGERATION SERVICE ENGINEER, Nickerson & Collins Co., Publishers, 435 N. Waller Ave., Chicago 44, Ill.  
Published monthly, Vol. 13, No. 5, May, 1945. Entered as second class matter March 4, 1936, Chicago, Ill., under  
the Act of March 3, 1879. Subscription in the United States, \$2.00 per year; all other countries, \$3.00 per year.

# ANSUL



## ST IN REFRIGERANTS

Ansul was first in America to produce Sulfur Dioxide for refrigeration (1915).

At the demand of the growing fractional-tonnage household refrigeration industry, Ansul began production of Methyl Chloride.

Ansul still analyzes *individually* every cylinder before it is shipped because—

The purity, dryness, and safety of handling of Ansul refrigerants are still top standards of a high-specification industry which Ansul is proud to have pioneered.



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### ANSUL CHEMICAL COMPANY

"NOW IN OUR 30TH YEAR"

MARINETTE, WISCONSIN

AGENTS FOR KINETIC'S "FREON-11," "FREON-12" AND "FREON-22"

May, 1945

THE REFRIGERATION SERVICE ENGINEER

# Refrigeration System **ENEMY No. 1** **IS MOISTURE**

A few drops of water accumulated at the expansion valve orifice may freeze it shut or open and put the whole system out of operation, just as ice in the carburetor stops your car. Also, water can interact with refrigerant and oil to form sludge or gum which may subsequently clog the valve. Moisture is Refrigeration System Enemy No. 1.

Moisture, in the form of water vapor, is ever present in the air. It will condense into liquid when in contact with any cold surface, just as water forms on the outside of a cold drinking glass. Inner surfaces of a cold refrigeration system will condense water from any air which has been allowed to enter the system. Therefore, opening a cold system to the atmosphere is inviting moisture trouble.

Leaving a pound or two low side pressure when opening a system prevents an outward flow of gas which tends to be effective. Water vapor may flow counter to the gas flow, thus introducing moisture into the system. A cold surface may look and feel with a thin, tightly clinging cloth...



Moisture in the refrigeration system freezes up valves—halting operation—much as ice in the carburetor stops your car.

But where units must be assembled in the field, thorough drying becomes a difficult problem. In subsequent insertions in this series we will discuss methods which have proved effective. There are three methods in general use—(1) heat and vacuum; (2) chemical dryers; (3) liquid dryers.

Complete elimination of moisture from a surface is extremely difficult. For example, you can't wipe a surface really dry with the dryest cloth. A surface which appears dry may have considerable moisture which clings to it. Moisture makes dry systems...



Space limitations prevent giving the full text of this service help on this page. The service bulletin illustrated here is complete. Write for your copy.

**How to Detect an Expansion Valve Frost Due to Accumulation of Moisture**



# "DETROIT" VALVES

## FOR BETTER PERFORMANCE

"Detroit" Expansion Valves and "DL" Solenoid Valves stand high in the favor of refrigeration men everywhere because they do the job better, and last longer. There is a "Detroit" Valve for every refrigeration need.

Write for Catalogue No.200-A.

No. 899 New Dura-Iron  
Thermostatic Expansion  
Valves for commercial in-  
stallations. Furnished with  
external equalizer and  
forged union connection.



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and "Standard" Sanitary Corporation

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Float Valves and Oil Burner Accessories • Radiator Valves and Balancing  
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and Refrigeration Accessories • Lubricators • Stationary and Locomotive

*Write*  
FOR YOUR COPY  
OF THIS  
SERVICE HELP

This is the first of a series of  
service bulletins, published  
by Detroit Lubricator Com-  
pany. They are printed on  
8½" x 11" paper, punched  
for a standard loose leaf  
binder. Copies may be had  
on request. Write for yours.

# Service Engineers Should Know...



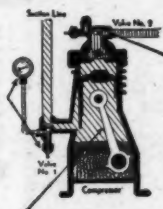
How to prevent refrigerant loss and lubrication troubles when open type machines are sent to storage or are shut down for extended periods.

This is what may happen when open type systems remain idle:

- A:** Exposure to high temperatures may create crankcase pressures high enough to weaken the shaft seal; result — refrigerant leaks out.
- B:** Exposure to low temperatures may condense refrigerant vapors in the crankcase — oil is diluted to cause foaming and oil pumping when machine is started again.

Here is the procedure to prevent the conditions under A and B.

**1** Attach compound gauge to the plug port of Valve #1, then turn valve stem all the way in to cut off suction line.



**2** Pump crankcase pressure down until a constant pressure of 2 or 3 lbs. per square inch is maintained; stop compressor.

**3** Turn stem of Valve #2 all way in cutting off line to condenser. Remove compound gauge, bleeding remaining pressure to zero. Replace port plug securely.

**4** Be sure to disconnect electrical current if the machine is not to be moved.




Manufacturers of "Virginia" Refrigerants and Agents for Kinetic's "Freon-12" — "Freon-22" — "Freon-11"

## VIRGINIA Smelting Co.


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**Doing a Bigger Job than  
Ever Before in the  
WAR ON MOISTURE**

## **IMPERIAL *TORPEDO* DEHYDRATOR**



● Keeping old refrigeration systems in good shape these days calls for more frequent repairs. And every time a unit is torn down, it is essential that all possibility of moisture be eliminated—a job for a dehydrator. Never before has the dehydrator been so important as it is today.

For drying out a system the most effective weapon in the war on moisture is the Imperial Torpedo Dehydrator. This is the unit that has introduced an entirely new standard of dehydrator design and dehydrator efficiency, and has established an amazing performance record since it was first introduced a few years ago.

THE IMPERIAL BRASS MFG. CO., 534 S. Racine Ave., Chicago 7, Ill.

### **IMPERIAL TORPEDO DEHYDRATOR**

Your best weapon in the war on moisture.

One piece streamlined shell.

Fewer joints — no soft solder — less chance of leakage.

Copper and brass construction.

Packed with "Silica Gel".

*Emblem of Quality*  
**IMPERIAL**

Fittings • Valves • Dehydrators • Filters • Floats • Charging Lines • Tools for Cutting, Flaring, Bending, Coiling, Pinch-off and Sweating

## Necessary

on multiple refrigeration systems and where close control is wanted on individual units

## Wide Range of Adjustment

...from 15 inch vacuum up to 55 lbs. gauge

## Close Temperature Control

valve is responsive to pressure changes of 1/10 lb.

## Large Gas Capacity

with very low pressure drop



## Convenient

service gauge connections for easy, accurate adjustment

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Temprite is small, rugged in construction and extremely sensitive in operation

## Available

from stock on orders rated AA-5 or better

## 5 Models

with capacity ranging from 4000 BTU's per hour up to 250,000 BTU's per hour

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*Originators of Instantaneous*



*Liquid Cooling Device*

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DETROIT 2, MICHIGAN

May, 1945

6

THE REFRIGERATION

*Here is the New*

MUELLER BRASS CO.

# REFILLABLE DEHYDRATOR



## Readily Removable Inlet For *Easy Refilling!*

When recharging our new Dehydrator, simply remove the inlet plug . . . back out the slotted inlet screen tube . . . shake out the exhausted agent, then replace with new.

In addition to this convenient feature (see illustration above) Mueller Brass Co. Filters and Driers are provided with the CONE SCREEN OUTLET, a specially designed filtering element that adds immeasurably to the life and efficiency of Driers and Filters.

Fine crystals or powder, which continually break away from the Dehydrating Agent, are forced to the base of the cone, leaving the center and tip of the screen open for the free flow of refrigerant. The cone screen itself is filled with pure wool which traps any particles that are sufficiently fine to pass through the screen mesh.

Particular attention has been given to screen areas in Mueller Brass Co. Filters and Dehydrators so that each size permits efficient passage to the maximum refrigerant volume that is used in a particular size refrigerant line.

**MUELLER BRASS CO.** PORT HURON, MICH.



SOME REPLACEMENTS ARE TOUGH TO MAKE  
... BUT IT'S EASY WITH



# DU PONT METHYL CHLORIDE!

**REPLACEMENTS** are easily made with pure, dry Du Pont Methyl Chloride. And you'll find this product equally satisfactory for original charging and recharging too.

**ORDER WHAT YOU NEED**—but don't stock up! You can get Du Pont Methyl Chloride when you need it—quickly—from stocks in principal cities. Assure yourself rapid deliveries by *returning cylinders promptly.*

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ELECTROCHEMICALS DEPARTMENT  
WILMINGTON 98, DELAWARE

## DU PONT METHYL CHLORIDE SPECIFICATIONS

Purity . . . . . 99.5% Methyl Chloride  
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Acid (as HCl) . . . . . 0.001% bywt. max.  
Residue on Evaporation . 0.01% bywt. max.  
Boiling Range (760mm). —24.6° to —23.6°C.  
Color . . . . . water white, clear



BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY

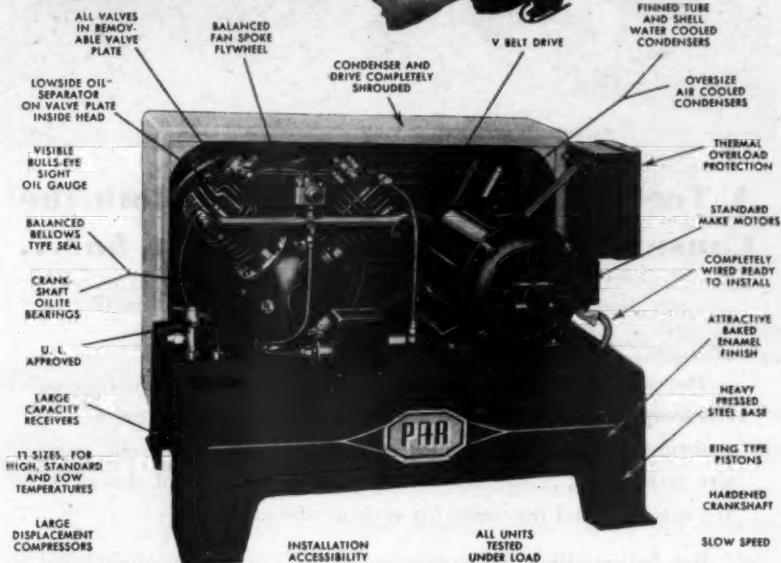
INVEST IN PEACE—BUY BONDS!

## DUPONT ELECTROCHEMICALS



*Here are the*  
**24 OUTSTANDING  
 FEATURES**  
*built in every*  
**PAR CONDENSING UNIT**

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**PAR—Condensing Unit Line sold exclusively through Franchised Refrigeration Supply Jobbers!**

**PAR**  
**Lynch**  
 DIVISION

*. . . By Comparison — You'll Buy PAR*  
**Manufacturing Corporation, Defiance, Ohio**  
**U. S. A.**



## **A Technique Which Removes Both the Cause and the Effect is Excellent, *but...***

*... one that excludes the cause ... prevents it from getting in at all ... is even better.*

The use of TZ in refrigeration units for the elimination of freeze-ups at the expansion valve, as well as the destruction of moisture and acid by chemical processes, is the Thawzone curative technique ... the removal of both the cause and the effect. It's excellent and necessary for systems *already ailing*.

But, better still, is TZ inoculation of old, new, and reconditioned systems. To *exclude* the cause *before* trouble starts. That's *pre-ventive* technique.

Refrigeration supply jobbers everywhere carry TZ.

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Highside Chemicals Co. Fully Protected by U. S. Patents

**The PIONEER FLUID DEHYDRANT**

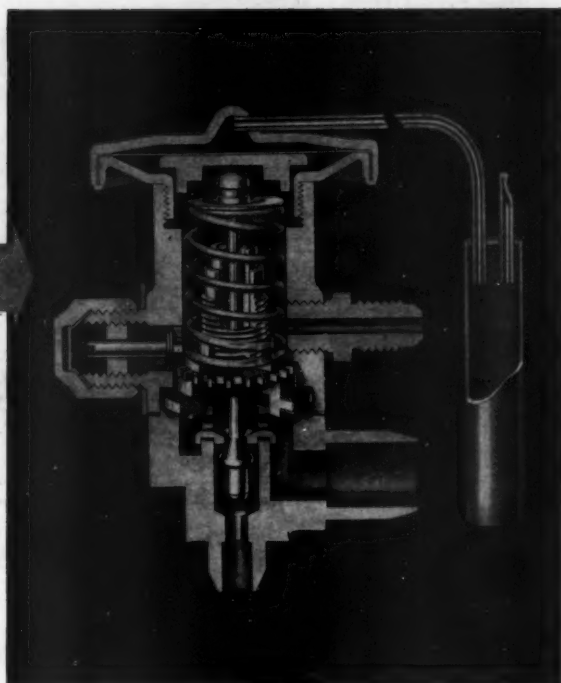
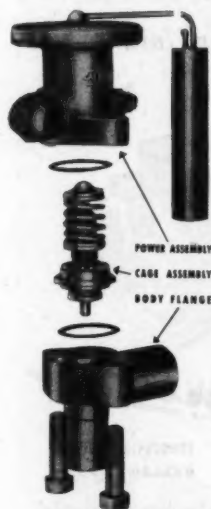
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# SEE

The Advantages  
of an Alco  
Thermo Valve



Here is a refrigerant flow control that is engineered for operating efficiency. Look at its simple construction—no multiple diaphragms or springs to cause excessive friction. Only three major units—power assembly, cage assembly and body flange. All working parts contained in easily removable cage assembly. Valve need not be taken from line for servicing. This simple, unit-type construction is your best assurance of low operating costs and greater refrigeration efficiency. See your Alco Jobber. Alco Valve Company, 857 Kingsland, St. Louis 5, Mo.



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Designers and manufacturers of Thermo-  
static Expansion Valves; Pressure  
Regulating Valves; Solenoid Valves;  
Float Switches; Float Valves.

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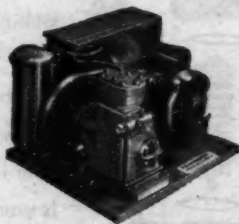
Frozen Spinach: "What's going on here?"

Ditto Beans: "It's that new Kelvinator Condensing Unit.  
Keeps us frozen all the time!"

30 years of giving more dependability  
...more economy...more performance  
is the result of Kelvinator's unfailing  
leadership in condensing  
unit engineering and design.

That's why progressive service men  
always specify Kelvinator!

Kelvinator distributors and  
zone offices stock a complete  
line of refrigeration supplies.  
See them for your installation  
material such as valves,  
fittings, dryers, etc.



**Kelvinator**  
DIVISION OF NASH-KELVINATOR CORPORATION, DETROIT

CONDENSING UNITS  
SEALED • OPEN



For Your Home—Remember Kel-  
vinator Refrigerators, Electric  
Ranges, Water Heaters and  
Home Freezers.



## ***Will it have a handsome modern Dial Thermometer?***

● If you are planning refrigeration equipment, particularly the "cold box" type, the Marsh organization is in an excellent position to produce dial thermometers that will grace your equipment—thermometers as accurate as they are attractive. Yet, thanks to modern production methods, we can supply them in quantities at a cost that you can justify in a highly competitive market.

If your present plans do not call for a thermometer, consider this sales building feature in the light of competition that is bound to come. An attractive dial thermometer is the costume jewelry of the refrigerating unit—and proof that the unit is doing its job right.

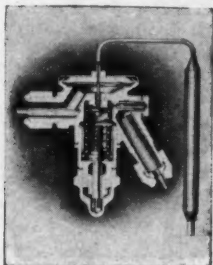
The thermometer illustrated is the Bi-metallic type, but special types and dials are available in quantity orders. No matter how unusual your design, Marsh engineers are ready to help you incorporate a thermometer that will add another effective talking point to your cold box. Write for further information today.

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**MARSH** *Refrigeration  
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## V-200 Thermal Expansion Valve



### *Interchangeable Orifice Cartridge Permits Proper Sizing ON THE JOB!*

The G. C. V-200 Thermal Expansion Valve can be quickly and accurately sized to any particular installation load, by simply inserting the proper orifice cartridge *on the job*. It eliminates the necessity of carrying a large stock of complete valves of different capacity.

The unsurpassed sensitivity and dependability of this famous valve is achieved, in part, by a diaphragm of adequate area • the well-balanced, low-rate adjusting spring • the full-opening tight-closing ball • and the practically frictionless single pusher pin.

The V-200 handles freon, methyl, chloride, or sulphur dioxide.

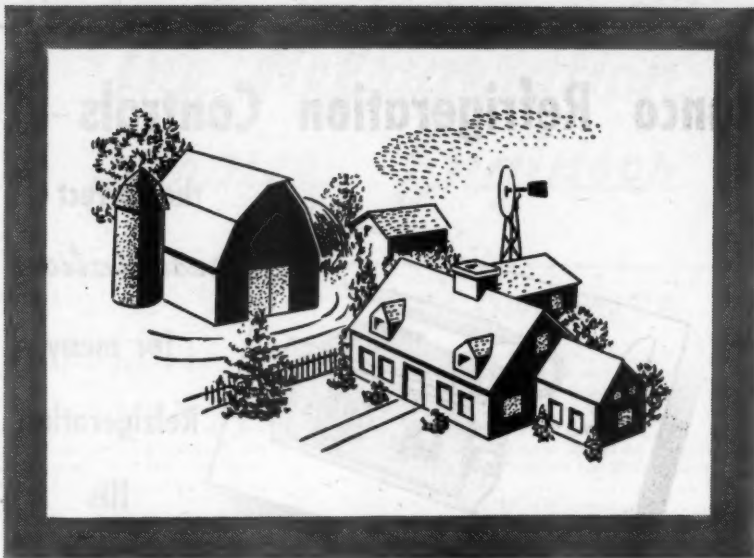
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*Address nearest Factory Branch  
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## **PORTRAIT OF A LIVE PROSPECT** **for refrigeration products**

**I**T'S TRUE . . . the farmer is classified as an essential civilian producer and is permitted, for example, to purchase milk coolers *now*. He's a real live prospect *today* and the manufacturer who sells him milk coolers today will have a foot in the door to sell him frozen food chests and other refrigeration units tomorrow.

We at Tecumseh are confident that the farm represents a tremendous postwar refrigeration market and especially in the sub-zero field. The farm vitally needs adequate refrigeration and with it can

operate much more profitably.

**If you're now in the planning stage** on postwar models, why not first consult *Chieftain* engineers? We've already designed postwar sample models of compressors and condensing units and built on the same sound engineering principles that established *Chieftain* leadership before the war. A complete new line of commercial hermetics is presented, with greater flexibility of application and added safeguards for trouble-free performance. *Write our sales department today.*

**WRITE OR WIRE FOR FURTHER INFORMATION**

**NOW... AND POSTWAR...  
CHIEFTAIN IS THE LEADER**



**Chieftain**

**TECUMSEH  
PRODUCTS CO.  
TECUMSEH • MICHIGAN**

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the correct  
*Prescription*  
for many  
Refrigeration  
Ills



Make a habit of considering your Ranco Jobber your "doctor of refrigeration problems." His wide experience in his field will enable him to prescribe just the Ranco Commercial or Domestic Refrigeration Control that will cure the trouble. Perhaps the exact replacement you had in mind will be unavailable, as the production of controls is necessarily limited at this

time, but you may rest assured that your Ranco Jobber will suggest something easily adaptable, if it is necessary to substitute. And, no matter which Ranco Control you select, you know that it is a precision instrument, sturdily made, dependable and accurate.

**Ranco Inc.**  
COLUMBUS 2, OHIO

# The Refrigeration Service Engineer

Vol. 13

No. 5

May, 1945

A Monthly Illustrated Journal Devoted to the Interests of the Refrigeration Service Engineer in the Servicing of Domestic and Small Commercial Refrigeration Systems

Official Organ  
REFRIGERATION SERVICE  
ENGINEERS SOCIETY

## The Cover

While each day brings the cessation of hostilities in Europe ever closer, the backing of a united people is needed as much as ever. The new world of freedom and peace will be hastened by the purchase of War bonds—and more War bonds.

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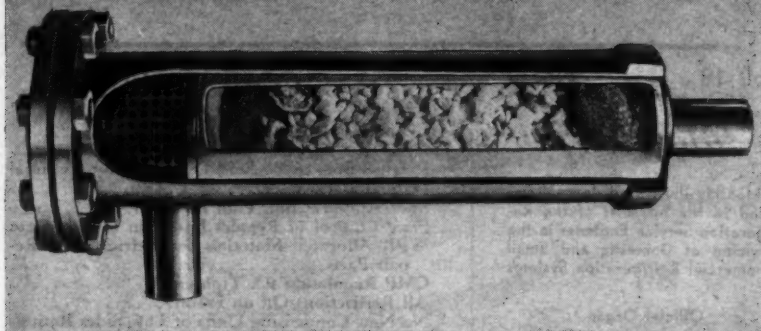
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# SIMPLIFY RIGID LINE DRIER SERVICING



## DFN ANGLE TYPE DEHYDRATORS

**make it as easy as *flexible lines*!**

No need to struggle with soldered connections and unyielding pipes, when you service DFN angle type Dehydrators on rigid lines. Just unbolt one flange, take out old cartridge, slip new one into shell and rebolt flange. Fast, simple—and you get the FULL protection against moisture, sediment and acid provided only by the DFN System.

DFN Cartridges are mechanically

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*Only the*

**DFN**  
SYSTEM

DEHYDRATES  
FILTERS  
NEUTRALIZES

DEHYDRATORS • STRAINERS
FILTERS • NEUTRALIZERS

## IN THIS ISSUE—

A summary of changes and additions to Government rulings affecting the refrigeration industry starts on page 20. The complete revised Government Regulation P-126 is printed to acquaint the service engineer with current changes that have been made regarding the purchasing of new condensing units for replacement purposes or new installations. See page 22.

Refrigeration heat loads are analyzed in an article on page 24 by, R. L. Hendrickson, who points out the variation that is encountered in the load for certain applications. This article shows the value derived from complete information before any equipment is ordered for an installation.

A meeting was held by representatives of the refrigeration industry in Washington recently to consider the serious situation confronting the service business through depletion by the draft. See full details regarding the action taken and the results on page 27.

W. R. Kromer, chairman of the National Refrigeration Service Council, has resigned due to pressure of personal business. See details on page 27.

The sixth article on Coldspot refrigerators covering expansion valve and float valve troubles and the corrections to be made appears in this issue on page 28. Construction of evaporators and the types used also are included as an aid to independent service men.

Practical information of value to servicemen is presented by several subscribers who entered the Service Pointer Contest. Very useful information is still being supplied by readers of R.S.E. Many of these pointers will be used in subsequent issues. Cash awards are made for each Service Pointer published unless the author requests the award to be applied on his subscription. See page 32.

The Question and Answer Section is full of suggestions and answers to many questions that have been submitted from time to time. See page 33.

All-concrete refrigerated cargo carriers supply U. S. invasion troops in the Pacific with fresh food during initial landing operations. See page 36 for description and pictures.

A group of refrigeration and air conditioning firms and individuals interested in these fields have submitted a proposed ordinance for the city of San Antonio, Tex. Text of the ordinance appears on page 38.

According to a nation-wide study made by the Progressive Grocer, four out of five independent retail food merchants will improve their present stores and add new refrigerating equipment when it is available. Story on page 36.

Iowa homes promise a big postwar market for refrigerators, according to a survey made by The Des Moines Sunday Register. Details and figures in the article on page 48.

Westinghouse Electric Corp. announces the new training film for the education and betterment of servicemen, showing the advantages of training men on how to meet the customer. See page 46.

R.S.E.S. members will be interested in reading the report on the preliminary meeting of the proposed New England Chapter to replace the recently disbanded Massachusetts State Chapter in favor of a more inclusive organization for the New England States. Officers of the Chapters and temporary officers at a recent meeting passed a number of resolutions to clarify the aims and purposes of the new Chapter. See page 56 for details.

Activities of many R.S.E.S. Chapters which suggest valuable educational and promotional programs for other Chapters will be found, as usual, in the Society Section. Formation of several New Chapters is also announced under this section starting on page 54.

A new division of R. E. M. A. has been formed as announced on page 68. For additional news of manufacturers and others of interest to the trade see pages 70, 72, 74 and 76.



# Government Bureaus—News and Rulings

**R**ULINGS and announcements issued by the various Government Bureaus that are of general interest to the refrigeration service industries are summarized below. Only the essential facts are given in most cases, and those who desire further or more complete information on any specific regulation or announcement are advised to write the proper Government agency.

§ § §

## Refrigerators to Be Sold Only to Most Essential Purchasers

**B**ECAUSE the stockpile of new domestic mechanical refrigerators (electrical, gas, kerosene) has now diminished to only approximately 88,000, purchase certificates for such equipment this spring and summer will be granted only for the most essential military and public health needs, the War Production Board said April 9. This number of mechanical refrigerators is less than six per cent of the original 1942 stockpile, it was explained.

It has become necessary at this time to deny, among others, applications for new mechanical refrigerators for war housing projects for the Army, Navy, United States Maritime Commission and the National Housing Agency, including Federal Public Housing Authority projects and privately financed housings projects of the Federal Housing Administration when these are to be constructed in the continental United States, according to the Consumers Durable Goods Division of WPB.

Conditions under which consideration will be given to written applications (on Form WPB-882) for one or more of the remaining 38,000 new domestic mechanical refrigerators for the Army, Navy, Maritime Commission, Foreign Economic Administration and the Office of Civilian Requirements were outlined by WPB as follows:

For military, governmental, professional, institutional or industrial use in the storage of vaccines, serums and biologicals; for research and testing laboratories developing critical materials or products to be used directly in connection with the war program; for certain food storage and preservation purposes in hospitals, in child care-centers, and in connection with school milk programs where non-mechanical ice chests

or ice boxes will not fulfill the requirements; for the Army and Navy of the United States; and for other essential military purposes.

When production of domestic mechanical refrigerators was stopped in 1942 so that plant facilities might be used for making munitions, there were in existence approximately 702,000 new mechanical refrigerators, WPB said. These, in the hands of manufacturers, distributors and retailers, were "frozen," and releases from the frozen stockpile have been made since that time only upon authorization by WPB. Such releases have been made chiefly to claimant agencies—the Army and Navy, Maritime Commission, Office of Civilian Requirements, National Housing Agency and Foreign Economic Administration.

About 250,000 new mechanical refrigerators, principally of the de luxe type, were released during 1942 and 1943 to retail stores for sale to consumers able to certify that no other refrigerating equipment was available to them. No further consumer releases are contemplated for this spring or summer, WPB emphasized.

Chief hope for the general public so far as new mechanical refrigerators are concerned, WPB said, lies in the expectation that within 12 months after V-E Day some mechanical refrigerators should be reaching the market.

Two methods of meeting civilian refrigerator needs in coming months were outlined by WPB:

1. Priority assistance of high urgency is extended to manufacturers to obtain materials for the manufacture of replacement parts. The consumer needs no priority to obtain these parts for his refrigerator.

2. Production of non-mechanical ice chests and boxes was fairly close to the programmed 75,000 in the first quarter of 1945, and this same number is expected from the manufacturers in the second quarter. These refrigerators are available to buyers, without purchase permits, and will meet the needs of many American homes this summer.

Production of non-mechanical ice chests and boxes was fairly close to the programmed 75,000 in the first quarter of 1945, and this same number is expected from the manufacturers in the second quarter.



## Spot Authorization Plan Restored

**A**NOTHER important step has been taken by the War Production Board in order to adjust its policies and controls to the changing military procurement programs of the Army Air Forces and other military agencies, J. A. Krug, Chairman of the War Production Board, announced April 27.

This action restores the complete operation of the Spot Authorization Plan for approving civilian production through district and regional offices of WPB, Mr. Krug said. Such authorizations have been severely restricted in critical labor areas since fall, when the pressure of battlefield experience on war production made it impossible to use certain resources for civilian production since they were still needed for war production, he added.

Civilian production under the spot authorization procedure may now be authorized in Group I and II labor areas without the unanimous consent of the Production Urgency Committee for the particular locality, Mr. Krug said.

This action represents a modification of the December 1, 1944, joint Army, Navy, War Manpower Commission and WPB agreement, which was designed to restrict civilian production authorizations under the spot program in critical labor areas to instances where all concerned parties, both military and civilian, agreed that there would be no interference with military and essential civilian output.

This new policy places all areas throughout the country on the same footing as far as spot authorizations are concerned, and means that procedures for obtaining permission to produce civilian goods in Group I and II areas will be the same as in Group III and IV and unclassified areas.

Controlled materials; copper, steel and aluminum, will not be available in the immediate future, according to WPB officials, for deferred allotments under the spot authorization procedure. However, attention is called to the fact that idle and excess stocks may be used for the production of civilian type goods under the procedure, and these items may be used immediately for authorized production.

In addition, it was pointed out, the Controlled Materials Plan will be "open-ended" when conditions permit, with the result that the spot procedure will become less important as a mechanism for authorizing civilian goods output.

Mr. Krug pointed out that WPB has already taken action to grant priority assistance to those industries which converted to war production during the war and which have major tooling and facility problems in getting ready for peacetime production.

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## Price Control of Repairs Based on Hourly Rate

**E**FFECTIVE price control for repair work where the charge is based upon the time spent in making repairs presents compliance difficulties which are not present when a flat price is charged. In many instances complaints have been made that consumers were required to pay for more time than was actually used to do the work. Supplemental Service Regulation 48 to RMPR 165, issued March 13, 1945, is calculated to provide effective control where necessary.

The provisions of this regulation will become applicable only when an order has been issued under the regulation by a regional administrator or district director. Such an order will apply only to the area designated therein and only to the type or types of repair establishments designated.

The regulation provides that regional administrators and authorized district directors may require repair establishments in designated areas which use an hourly rate to give their customers informative invoices, to keep copies of such invoices in their files for OPA inspection, and, if they have productive employees, to keep certain records.

The invoices will show the approximate amount of time for which customers have been charged and the amount of time which the employees have worked. Where it is revealed that substantially less time was used by repair establishments, appropriate enforcement measures will be taken. Since the requirements deal with hours worked by employees, they do not apply to "one man" shops or other shops which do not have productive employees. However, such shops must comply with the invoice requirements of the regulations.

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## WPB Allocates Materials for Refrigeration Repair Parts

**R**ECOGNIZING the imperative necessity for maintaining existing refrigeration equipment, the manufacture of 80 million dollars worth of repair parts has been authorized by the War Production Board.

### **CMP Regulation 9A Tightened**

**T**HE restrictions especially on the use of wire and on inventory of the repairman are further emphasized in CMP Regulation as amended April 17. The limits on quantities of copper wire, copper and copper base alloy products which may be purchased per quarter remain unchanged, but it is emphasized that inventories must be kept within the following limits:

(f) *Restrictions on inventory.* A repairman may not accept delivery of any item of parts or materials bought under this regulation if his inventory of that item of parts or materials is or would by accepting delivery become larger than he needs to continue his repair and maintenance service for a 60-day period, according to his current methods of operation. A repairman may not accept delivery of any item of copper wire if his inventory of that item is or would by accepting delivery become more than he needs for a 15-day period. However, if the supply of any item which he has on hand is less than the permitted amount, he may accept delivery of the smallest commercial amount of that item which his distributor normally sells, even if that will increase his supply beyond the amount specified.

The conservation of copper wire and cord is further emphasized in the Regulation.

(e) (8) (1) New cord may not be supplied for a vacuum cleaner, washer, refrigerator, iron, radio, lamp, fixture, or any other

electrical appliance or piece of equipment where it is possible, by patching, by the use of insulating tape, or by shortening, to put the old cord in condition for reasonably good service for the remainder of 1945. However, a repairman may supply new cord when the building or electrical codes prohibit patching or the use of insulating tape in repairing old cord, or where shortening is impracticable (i.e., where the worn out portion of the cord cannot be cut off and the plug attached to the shortened cord).

(ii) New cord may not be used to assemble or make up a new connecting or extension cord, for resale or gift purposes, except as outlined in the preceding paragraph.

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### **All Restrictions Off on Freon**

**A**LL controls on the production and distribution of "Freon-12" and "Freon-22," the refrigerants used in air conditioning and refrigerating systems, were removed April 28 when WPB ordered revocation of Conservation Orders M-28 and M-28a.

WPB officials warned dealers, distributors and owners of air conditioning and refrigerating systems that they should do everything in their power to assure the prompt return of empty cylinders. If such containers are not returned speedily, WPB said, there is a possibility that a shortage may develop that will seriously affect shipments.

## **No New Condensing Units or Low Sides Ratings Allowed Under P-126**

**A**LL preference ratings applied under Order P-126 for a new condensing unit, or a new cabinet, or other insulated enclosure, or a new low side unit or a system containing a new condensing unit or a new insulated enclosure were revoked on April 14 in Direction 1 of the order. The only exception is where a hermetically sealed condensing unit is ordered for emergency maintenance or emergency repair of a specific job (but not for inventory).

It does not affect the use of such ratings

for repair parts for a condensing unit, or repair parts for a cabinet or other insulated enclosure, or repair parts for a low-side unit.

As used in this direction, a "condensing unit" means any new assembly in which is incorporated a compressor and a condenser, and which is desired for use in any refrigeration or air conditioning system. It includes any such assembly whether or not the compressor and condenser are actually interconnected, and whether or not the assembly also includes a flywheel, motor, controls, base, or other accessories.

Where the banned ratings have been used on orders, they must be cancelled. Such orders may, however, be rerated by the service agency to extend a customer's rating under CMP Regulation 5 or 5A for an installation permitted under paragraph (d) of Order L-38 (to replace equipment of substantially the same size or capacity which has worn out or become damaged beyond repair while in the purchaser's possession for at least 90 days).

The owner of any system who needs a new condensing unit or insulated enclosure, or a new low-side unit, for the emergency replacement of one which has been destroyed by fire or other casualty, or is broken down beyond repair, if unable to obtain it by the use of his CMP 5 or 5A rating, within the time required, may apply for additional priorities assistance to the nearest field office of the War Production Board.

**[Preference Rating Order P-126, Direction 1] CONDENSING UNITS, CABINETS, LOW-SIDE UNITS, AND SYSTEMS**

The following direction is issued pursuant to Preference Rating Order P-126:

(a) **Purpose.** This direction prohibits the use of preference ratings assigned by Order P-126 to get any new condensing unit (as defined below), or any new cabinet or other new insulated enclosure, or any new low-side units (such as unit coolers), or any system containing a new condensing unit or a new cabinet or other new insulated enclosure. The only exception is where a hermetically sealed condensing unit is ordered for emergency repair of a specific job (but not for inventory).

It does not affect the use of such ratings for repair parts for a condensing unit, or repair parts for a cabinet or other insulated enclosure, or repair parts for a low-side unit.

As used in this direction, a "condensing unit" means any new assembly in which is incorporated a compressor and a condenser, and which is desired for use in any refrigeration or air conditioning system. It includes any such assembly whether or not the compressor and condenser are actually interconnected, and whether or not the assembly also includes a flywheel, motor, controls, base, or other accessories.

(b) **Restriction on ratings and deliveries.**

(1) All preference ratings applied under Order P-126 for a new condensing unit, or a new cabinet or other insulated enclosure, or a new low-side unit, or a system containing a new condensing unit or a new insulated enclosure, are hereby revoked. No service agency or any other person shall apply any preference rating assigned by Order P-126 to get any of such items. Any service agency who has applied a preference rating under Order P-126 to an order or orders for any of such items must immediately, in the case of each unfilled order for such items to which he has applied a P-126 rating, either cancel the order or inform his supplier that it is no longer to be treated as rated.

(2) Any person (including dealers, distributors, and manufacturers) who has accepted an order for a new condensing unit, or for a new cabinet or other insulated enclosure, or for a new low-side unit, or for a system containing a new condensing unit or new insulated enclosure, bearing a P-126

rating, shall not make delivery of any such items to fill such order. A person who has accepted such an order for any of such items and has extended the rating to get them to fill the order, must immediately, in the case of each order to which he has extended or applied a rating for such items, either cancel the order or inform his supplier that it is no longer to be treated as rated (unless his customer's order is rerated, as explained in (b) (3) below). A manufacturer who has accepted an order bearing a P-126 rating for any of such items, and has used a preference rating assigned him for his authorized production schedule in ordering them from his supplier, must promptly adjust his outstanding orders for them, in accordance with §944.14 (b) of Priorities Regulation 1, to the extent necessary to avoid his having an inventory of such items which (as a result of the revocation of the P-126 ratings from his customers), would be in excess of the inventory restriction in that regulation. If any purchaser who has applied a P-126 rating or extended such a rating, or applied some other rating to get such items to fill an order rated under P-126, should fail to cancel it, as required by this direction, the supplier may not treat it as a valid rating if he knows or has reasonable cause to believe that it should be cancelled by his customer.

(3) A service agency who has applied a rating under Order P-126 to get a new condensing unit or insulated enclosure, or a new low-side unit, or a system containing a new condensing unit or insulated enclosure, to fill a purchase order from his customer which was rated in accordance with CMP Regulations 5 or 5A and for an installation permitted under paragraph (d) of Order L-38, or to fill an order from his customer rated on Forms WPB-1319 or GA-1456, should immediately extend his customer's rating for the items ordered for this purpose (in addition to cancelling the P-126 rating). If the agency has delivered such an item to fill a customer's order rated in accordance with CMP Regulations 5 or 5A and for an installation permitted under paragraph (d) of Order L-38, or rated on WPB-1319 or GA-1456, and has used a P-126 rating to replace in inventory the item delivered to the customer (instead of extending the customer's rating for that purpose), the service agency should immediately extend the customer's rating (if within the three months period permitted under paragraph (h) (1) of Priorities Regulation 3), in addition to cancelling the P-126 rating. Any such rating extended in accordance with this Direction is a rerating of the order under the provisions of Priorities Regulation 12, and constitutes a substitution of the extended rating in place of the P-126 rating.

(c) (1) **Hermetically sealed units.** The restrictions in paragraph (b) do not apply to the use of a P-126 rating applied to get a hermetically sealed condensing unit when required for the emergency replacement of a similar unit for a specific system which has broken down or is about to break down, and requires a new unit for immediate installation. However, this does not permit the use of any P-126 rating to get such units for inventory.

(2) **Individual applications.** The owner of any system who needs a new condensing unit or insulated enclosure, or a new low-side unit, for the emergency replacement of one which has been destroyed by fire or other casualty, or is broken down beyond repair, if unable to obtain it by the use of his CMP 5 or 5A rating, within the time required, may apply for additional priorities assistance to the nearest field office of the War Production Board.

Issued this 14th day of April 1945.  
War Production Board

*The Problem is*

# Refrigeration Heat Loads

By R. L. Hendrickson

Associate Editor, Refrigeration Service Engineer

THE refrigeration service engineer is being called on more and more to do the job of designing and specifying the equipment for numerous refrigeration applications. Selecting the size of equipment cannot be by guess if he expects to avoid the many failures that are the result of this method. Experience of one job similar in characteristics to another may or may not result in satisfactory operation. There are always the variables that cannot be guessed with any degree of accuracy. The successful service engineer does not rely on guessing the right size. He prefers to do some logical figuring; taking the facts from reliable sources and arriving at a mathematically correct answer before ordering equipment for the job.

The parts of the system affected by the heat load imposed on it are the condenser, compressor, motor, refrigerant lines, expansion valve, and evaporator. The condensing unit must be large enough to adequately handle the maximum load. It must not have too much over-capacity because it will only adjust its capacity to that of the evaporator. The evaporator should also be near the correct capacity to avoid undesirable humidity conditions and improper t.d. The motor h.p. or speed of the compressor must be balanced for the type of load to which the condensing unit is applied. The refrigerant lines must be ample to supply sufficient refrigerant to the expansion valve and to return the vapor to the compressor without too great a pressure drop. Lastly, the expansion valve must be rated at close to the condensing unit capacity to assure complete control of the refrigerant.

## The Refrigeration Load

The sources of heat to be removed fall into three main types, namely: (1) Heat leakage through the insulated barriers; (2) Air changes that occur normally and as a result of usage; (3) Product load. Figuring the heat leakage is simply a problem in mathematics based on the insulating value of the material used. Air changes and usage involve

mathematics tempered with judgment because the usage is a variable factor. The product load is extremely variable and as such requires a careful analysis of the type and quantity to be cooled over any given period of time or season of the year.

It will generally be found that the owner's estimate is conservative because he seldom considers the many additional items that will be cooled or the potential increase in business that the equipment may make possible. He should be questioned on this phase of his business to ascertain as near as possible this part of the refrigeration load.

## Leakage Load

If the equipment already exists, then the leakage load must be based on the thickness of insulation and the condition of the insulation. It follows that equipment designed for high or medium temperatures is not practical on low temperatures because the type or thickness of insulation will not be adequate. The condition of the insulation is highly important. If it has not been properly vapor sealed on the exterior, it will contain varying degrees of moisture which reduces its insulating value.

Briefly reviewing the conditions affecting heat leakage, we know the rate of heat transfer, for practical purposes, is directly proportional to the t.d. and inversely proportional to the thickness. This rate is termed *conductivity* and is expressed by the symbol (K) representing the number of Btu. that will pass through one square foot of the material one inch thick for each degree t.d. in one hour. ( $K = \text{Btu.}/\text{sq.ft.}/\text{inch}/\text{degree}/\text{hr.}$ ).

From this definition, we find that the K values of two or more thicknesses cannot be added to get the overall heat leakage for if one inch of corkboard has a K of .27 then two one inch layers will be better than one and the K will be less than .27, not  $2 \times .27$  or .54. We, therefore, define K in terms of its resistance to heat flow; then we can add the resistances because the greater the thickness, the greater will be the resistance value.

Since K is expressed in Btu. per degree and resistance (r) in degrees per Btu., one is said to be the reciprocal of the other. Mathematically, this is expressed by:

$$K = \frac{1}{r} \text{ or } r = \frac{1}{K}$$

When two or more heat barriers of a different nature are used, the term *transmittance* is used. This is expressed by the symbol (U) and is the overall conductivity of the wall. Since (K) values cannot be added, they are expressed in terms of (r) in solving for transmittance in the following formula:

$$U = \frac{1}{\frac{1}{K_1} + \frac{1}{K_2} + \frac{1}{K_3} + \frac{1}{K_4} + \dots \text{ etc.}}$$

According to algebra, if the value of  $K_1$ ,  $K_2$ , and  $K_3$  are equal, all the numerators can be added and placed over one common denominator.\* This simplifies the formula to read:

$$U = \frac{1}{\frac{8}{K} + \frac{1}{K_4}}$$

For example, a 6" corkboard wall supported on one side by 1/2" fir and galvanized iron on the other will have a U value of:

$$U = \frac{1}{\frac{6}{.043} + \frac{1}{.27}} = \frac{1}{22.2 + .66} = .043 \text{ Btu. per hour}$$

This is taking the K for corkboard as 0.27 and for fir as 0.76.

If we proceed with calculations for a 40 cubic foot zero temperature storage cabinet built with the insulation just described, it is only a matter of finding the area and the t.d. before all factors are known. Assuming a room temperature of 90 degrees, the t.d. will be 90 - 0 = 90 degrees. The average cabinet of this capacity has about 136 sq. ft. of surface.

The final formula for heat leakage in Btu. per hour becomes:

$$\begin{aligned} H &= U \times \text{t.d.} \times \text{Area or} \\ H &= .043 \times 90 \times 136 \\ H &= 526 \text{ Btu. per hour} \end{aligned}$$

### The Air Change Load

Exact figures on air changes cannot be given because the usage factor is different for each installation. Average conditions, therefore, serve as a basis of computing this

part of the refrigeration load. Table I indicates average conditions based on the volume of a cooler in cubic feet. Where the volume is relatively small, the number of changes is high because each time the door is opened, a greater percentage of the total volume of cold air flows out and is replaced by warmer room air. This does not hold true on very low temperature equipment where the openings are at the top.

TABLE I—AIR CHANGES PER HOUR

Room Volume	Changes	
	Above 32°	Below 32°
250	1.6	1.2
300	1.4	1.1
400	1.2	.94
500	1.1	.84
600	1.0	.75
700	.85	.70
800	.83	.68
1000	.72	.56
2000	.5	.39
4000	.34	.26

Average conditions are again considered when estimating the quantity of heat in one cubic foot of air that must be removed in cooling it to the desired temperature. The heat to be removed can be accurately determined but such accuracy is not in keeping with the other data presented here. We, therefore, use Table II with very slight error. If the cooler is operating in a 90 degree room and is being held at 35 degrees, the air must be cooled 90 - 35 = 55 degrees.

According to the table, air at 50% relative humidity when cooled from 90 degrees to 35 degrees will require the removal of 2.17 Btu. The cooler volume times changes per hour times 2.17 will then give the Btu. necessary to be removed for cooling the air.

TABLE II—BTU. NECESSARY TO COOL AIR

Storage Temp.	Temp. Outside Air							
	85				95			
Rel. Humidity	50	60	50	60	50	60	50	60
50	1.82	1.54	1.62	1.87	1.93	1.22	2.06	2.44
45	1.50	1.73	1.80	2.06	2.12	2.42	2.28	2.65
40	1.69	1.92	2.00	2.26	2.31	2.62	2.67	3.06
35	1.86	2.09	2.17	2.43	2.49	2.79	2.85	3.24
30	2.00	2.24	2.26	2.53	2.64	2.94	2.95	3.35
20	2.33	2.56	2.62	2.90	2.98	3.31	3.33	3.73
10	2.65	2.86	2.93	3.20	3.29	3.62	3.64	4.04
0	2.98	3.21	3.28	3.56	3.64	4.00	4.01	4.43
-10	3.25	3.49	3.56	3.85	3.93	4.30	4.31	4.74

### The Product Load

Assuming the product load in a 40 cubic foot zero temperature box has been determined as the freezing of 50 pounds of meat and 50 pounds of vegetables per 24 hours,



we must first determine when this load will occur. It will be divided into three separate items because the product must first be cooled, then frozen and finally, sub-cooled to storage temperature. If the product enters the freezer at 60 degrees the meat will drop to 28 degrees before starting to freeze and the vegetables will start freezing at 32 degrees. As an average, the specific heat before freezing is 0.7 for meats and 0.9 for vegetables. Below freezing the specific heat for both is approximately 0.4. The latent heats are 99 and 125 Btu. for the meat and vegetables respectively.

If the vegetables are cooled and frozen in 9 hours, the heat that must be removed by the condensing unit is shown here:

Cooling 50 lbs.  $\times 0.9 \times (60-32) = 1260$  Btu.

Freezing 50 lbs.  $\times 125$  Btu. = 6250

Sub-cooling 50 lbs.  $\times 0.4 \times (32-0) = 640$

Total.....8150 Btu.

In like manner, cooling and freezing the meat in 10 hours imposes the following load on the condensing unit:

Cooling 50 lbs.  $\times 0.7 \times (60-28) = 1120$  Btu.

Freezing 50 lbs.  $\times 99$  Btu. = 4950

Sub-cooling 50 lbs.  $\times 0.4 \times (28-0) = 560$

Total.....6630 Btu.

### Tabulating the Total Hourly Load

Many refrigeration applications can be figured over a period of 24 hours but others

such as the freezing preservation of foods require the maximum load to be concentrated over a relatively short time. If the daily capacity of the condensing unit can be figured on a basis of 14 to 16 hours running time, it is obvious that a smaller machine will do the job. Freezing applications, therefore, require a break-down of the load such as given in the Chart. It will be noted that the leakage load is continuous while the product loads are intermittent.

This chart shows that the vegetables were placed in the freezer at 10:00 A. M., cooling continued until 2:00 P. M. at which time the freezing started and continued until 7:00 P. M. In the meantime, the meat was placed in the freezer at 4:00 P. M. At the bottom of the chart is the total Btu. per hour load for each hour of the day. At 7:00 P. M. the load changed from 1792 Btu. to 910 Btu. per hour.

Tabulating the load in this manner for any set of conditions will present a very comprehensive picture of the maximum and minimum load imposed on the condensing unit.

### Selecting the Condensing Unit

Assuming the evaporator has been selected or designed to absorb the maximum load occurring between 4 and 7 P. M. as indicated on the chart, it is only necessary to refer to manufacturers' data to select the proper size condensing unit. If the evaporator is oper-

(Continued on page 52)

Chart Showing Heat Load Variation Per Day

	AM											PM												
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
LEAKAGE LOAD	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
VEG. COOLING												I	I	I	I									
VEG. FREEZING																2	2	2	2	2				
VEG. SUB-COOL																					3	3	3	3
MEAT COOLING																	4	4	4	4				
MEAT FREEZING	5	8																				5	5	8
MEAT SUB-COOL					6	6	6																	
	1351	713						526				841		1568	1792					910		1511		1351

$$X=526 \quad 1=315 \quad 2=1042 \quad 3=160 \quad 4=224 \\ 5=825 \quad 6=187$$



## WASHINGTON REQUESTED TO DEFER ESSENTIAL SERVICE MEN

**R**EPRESENTATIVES of all segments of the refrigeration industry emphasized to Washington officials in a three-day conference the serious situation confronting the service business through the depletion of ranks of experienced service engineers.

Headed by W. R. Kromer, Chairman of the National Refrigeration Service Council, the committee included P. B. Zimmerman, Dayton, Ohio, representing the Air Conditioning and Refrigerating Machinery Association; R. Kennedy Hanson, Pittsburgh, Pa., representing the Refrigeration Equipment Manufacturers' Association; George J. Roche, Baltimore, Md., representing the National Refrigeration Supply Jobbers' Association, and H. T. McDermott, Chicago, International Secretary, The Refrigeration Service Engineers Society.

Although information received from W. R. Kromer, Chairman, National Refrigeration Service Council, by telegram April 12th, indicated that immediate action was being taken to alleviate the situation, and associations and local councils instructed to notify their members, Washington officials subsequently advised that this was not correct.

Accordingly, in a telegram of April 28th sent by Mr. Kromer to all associations and councils, the information regarding deferment of experienced service men was withdrawn. The telegram follows:

"Special—Rush—Supplemental instructions re deferment certifications. The Interagency Committee has approved an exception to the 15% quota restriction for application in the handling of certifications on lists containing seven names or less. Based upon strict application of the standards of eligibility for certification as set forth in our instruction of February 20th, you may, effective immediately certify one man on lists containing three names or less, and you may certify two men on lists containing four through seven names. This authority is retroactive and will enable you to reconsider and certify meritorious cases which you were forced to deny or hold because of previous overall percentage limitations. It does not, however, authorize additional certifications for lists of three or less names on which you have already certified one man. On lists with four through seven names on which you have certified only one name, you may under this authority certify one additional name."

From this information it seems apparent that little change has occurred other than the exception made on small lists on which 15% quota restriction for application in the

handling of certifications on lists containing seven names or less.

If, on a list of three or less names, one man has already been certified to the War Production Board, no additional certifications are permitted. Similarly, on lists of four through seven names, on which only one name has been certified, an additional name is allowed for certification.

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## W. R. KROMER, CHAIRMAN, NRSC, SUBMITS RESIGNATION

**D**UE to the pressure of personal business, W. R. Kromer, who has served as chairman of the National Refrigeration Service Council since the death of the late John Wylie, Jr., has submitted his resignation in a letter dated April 14th as follows:

TO, Members of the National Refrigeration Service Council and Local Refrigeration Service Councils:

I regret to advise that due to the press of personal business it will be impossible for me to continue as chairman of the National Refrigeration Council after May 1st. I will be glad to assist the incoming chairman and remain as a member of the council that I may do what I can to help in any future problems.

It seems that without question the nation's business will be controlled in Washington over the next few years and I believe the National Council is in a position to do a comprehensive job for all of the associations within the industry during the next few years in regard to surplus materials, taxes, allocation of employment and materials, etc. Should the council be expanded to include some national organizations not now represented, a national office should be supported in Washington charged with responsibility of meeting the conditions, situations, and problems. Such a man, well qualified, well informed, and well thought of in all the Government agencies in Washington is available to head up such an office.

Should local councils and independent contractors feel that further representation by the National Council would be beneficial and that it should be expanded to meet the coming problems, I suggest that you immediately advise your jobbers, your manufacturers, and your distributors individually.

It has been a real pleasure to work in the past two years with the members of the National Service Council, The National War Council, The War Manpower Commission Bureau of Training, U.S. Department of Education and the many fine people who without compensation organized and directed the local refrigeration service councils.

Sincerely yours,  
W. R. KROMER.

## The Coldspot Electric Refrigerator

### Expansion Valve Troubles

THE expansion valve may be the cause of several troubles with the unit. The valve may become stuck open or closed, it may be erratic in operation, or a singing or vibrating noise may develop in the valve.

The only external remedy for a stuck or erratic valve is "flushing." There is the possibility that dirt or sediment may be impeding the action of the valve and it can usually be dislodged by forcing a rush of liquid through to wash the working parts clean.

If the expansion valve is stuck "open," the liquid  $SO_2$  escapes into the evaporator and causes the unit to defrost and causes noise or tightness in the compressor.

If the expansion valve is stuck "closed," the coils will defrost due to lack of refrigerant. In either case, whether stuck open or closed, continuous running may result.

An erratic expansion valve is one which sticks irregularly either open or closed or at some intermediate position. This defect can best be diagnosed by means of a gauge.

### Flushing the Expansion Valve

With the unit running, close the expansion valve (turn counter-clockwise all the way out) and let unit run several minutes. Then *open the expansion valve all the way* (turn clockwise) and *immediately back it out again* and readjust it to the proper setting with the unit still running.

### "Singing" Expansion Valve

A vibrating or "singing" expansion valve can be recognized by a fairly loud buzzing noise which emanates from the valve itself and is most audible when the cabinet door is open. The expansion valve should be touched to feel the vibration. The cause of this vibration is a delicate balance of conditions within the valve which allows the needle to chatter in the valve seat.

This critical balance sometimes occurs only at one particular setting of the valve

This is the sixth of a series of articles giving detailed servicing instructions on Coldspot Electric Units, compiled from the Service Manual issued by Sears Roebuck & Company, makers of the Coldspot Unit and is published with their permission. This is the first authorized publication of this material and will prove of inestimable value to the thousands of service engineers all over the country who daily come in contact with these refrigerators.

and can be corrected by readjusting the valve slightly. If this readjustment cannot be made without exceeding the limits of the recommended range for that unit, the valve must be treated as follows: (1) Grasp the body of the valve with an adjustable wrench. (2) Grasp the bushing through which the adjusting screw extends with another wrench. (3) While holding the valve body stationary apply even, firm pressure on the second wrench to slightly bend the bushing on the metal cap. The movement need not be even noticeable and should be made very cautiously to avoid too much distortion of the valve. By thus misaligning the spring, yoke and needle, the "singing" vibration is prevented.

### "Frozen" Expansion Valve

The rubber diaphragm cap is intended to keep moisture out of the bellows chamber of the expansion valve. A small amount of glycerine is put in this chamber at the time of manufacture to prevent any small amount of water, which does enter, from freezing.

A punctured or carelessly installed diaphragm cap will allow moisture-laden air to enter the bellows chamber and the moisture will condense on the cold parts of the interior and, in time, may freeze into ice and immobilize or seize the bellows. This will cause the valve to remain open with

the accompanying higher evaporator temperature as long as the ice so formed does not melt.

Another reaction may follow if the water condenses in the "folds" of the bellows and expands in freezing to hold the expansion valve closed. The unit will defrost while running and possibly allow the ice in the bellows to melt and release the valve. As this action may repeat itself, it gives the symptoms of an erratic expansion valve.

A "frozen" expansion valve can only be corrected by first removing the unit from the cabinet. The rubber cap is then removed from the valve and a blow torch or other controlled flame is used to gradually heat the metal cap which forms the bellows chamber until the water within turns to steam and escapes through the vent in the adjusting screw. *Be very careful in applying heat not to melt the solder on the joints of the valve.*

Apply heat long enough only to evaporate the water. Replace the lost glycerine with a new application which can be put in with an eye-dropper when the unit is turned on end with the adjusting screw pointing upward.

After correcting the frozen expansion valve, it is wise to replace the old rubber cap with a new one and apply it carefully to prevent a repetition of the trouble. After fitting the collar of the cap on the brass bushing of the valve, pinch the collar away from the bushing to allow the pressure in-

side of the cap to equalize with that of the atmosphere so the cap will assume its normal shape.

### Float Valves

On later model Coldspot units, a "flooded" system is used. In this type of unit the evaporator is composed of a number of U-shaped tubes which terminate in two "headers" (Fig. 35), instead of the continuous coil of tubing of the dry expansion evaporator. The flooded evaporator contains all of the liquid refrigerant except the small portion which is in the float valve chamber.

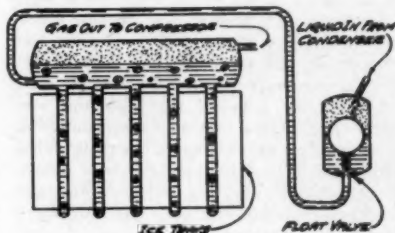


Fig. 36. High side float hook-up

Float valves may be of either the high side or low side variety, depending on the location in the system. The Coldspot uses a *high side* float which is located between the condenser and the evaporator, Fig. 36.

The float valve assembly is merely a float ball which is linked to a needle valve within a housing (Fig. 37). As liquid refrigerant from the condenser fills the housing to a

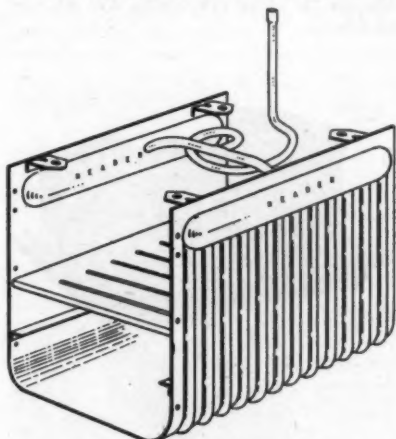


Fig. 35. U-shaped Evaporator with tubes terminating in two headers

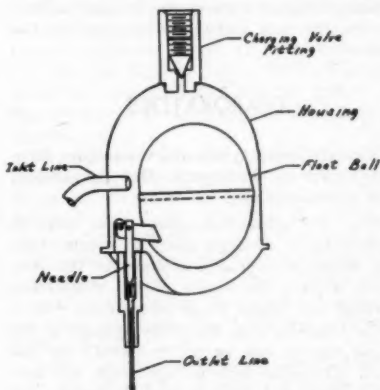


Fig. 37. The float valve assembly

certain point, the ball floats and opens the needle valve to allow the liquid to enter the evaporator.

The amount of  $\text{SO}_2$  in the flooded system *must be correct* in order to maintain the level of refrigerant at or near half way up in the headers. An over or under charge will affect the operation seriously. The six cubic foot size unit is charged with 80 ounces (plus or minus  $\frac{1}{2}$  ounce) at the factory.

There is no adjustment in the field on the float valve. The amount of refrigeration is determined by the charge of  $\text{SO}_2$ , the capacity of the pump, and the thermostat.

The only troubles which might occur with a float valve are that it may become stuck open or shut, or may be leaky. If open, the evaporator will warm up and defrost because a vacuum would not be possible with no restriction between the high and low sides. If shut, the unit would run until the float chamber and condenser gradually filled with liquid  $\text{SO}_2$ . The liquid  $\text{SO}_2$  will reduce the effective condensing surfaces and the head pressure will rise until the unit operates on the overload relay.

A leaky float valve allows the level of refrigerant to rise during the "off" cycle. The suction line will then frost back when the unit turns on. The liquid line which normally warms up during the "off" cycle will remain cool during the first part of the "off" cycle.

The only recommended field correction for stuck or leaky float valves is to lift the unit about an inch at one end and drop it to jar the float mechanism loose. If this remedy does not correct the trouble permanently, the unit should be returned to the factory.

## EVAPORATORS

Two different types of evaporators have been used on Coldspots—Dry Expansion, and Flooded Type.

The dry expansion evaporator consists essentially of a single piece of copper tubing wrapped around a frame. In the very early models, the frame of the evaporator formed two tanks which were filled with a brine solution, Fig. 38. The purpose of the brine was to act as a "fly-wheel" for the unit. On each cycle of operation, the unit runs additional time to cool the brine, and "Off" periods are made longer because of

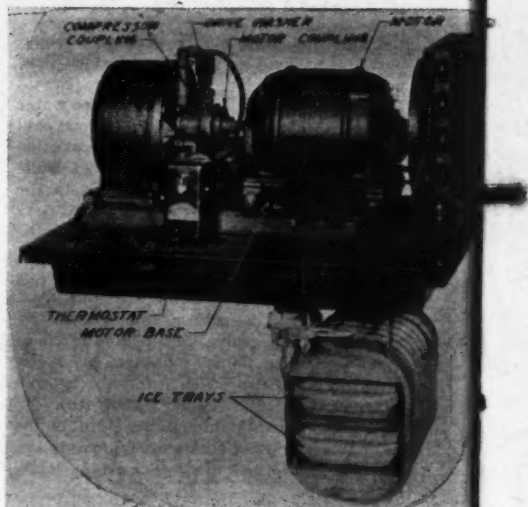


Fig. 38. Early brine holdover evaporator

the heat absorbing capacity of the cold brine. These tanks are either drained or the entire evaporator changed to newer models, whenever these old models are repaired at the factory. Later, dry expansion type evaporators were made up of one or more brass shells, around which the copper tubing was coiled (see Fig. 39). This construction was used until 1988, at which time the "U" type evaporator, Fig. 40, was introduced.

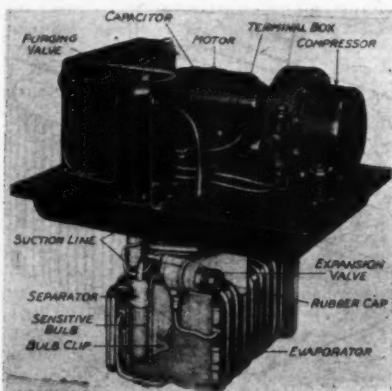


Fig. 39. Continuous tube evaporator

The principle of operation of each of these evaporators is the same. The shape of the shell, the method of wrapping the tubing, the location of the expansion valve (inlet end) and separators (outlet end), and the length of tubing vary with the type and size.

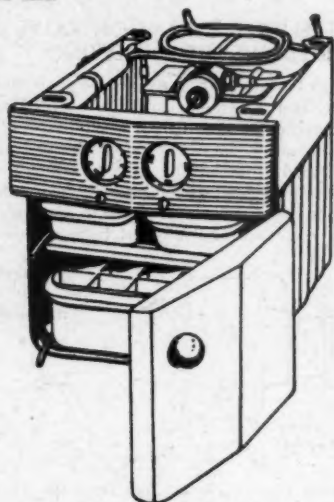


Fig. 40. U-type evaporator

The separator, Fig. 39, is used to prevent liquid refrigerant being drawn into the compressor. Drops of liquid refrigerant fall into the separator and are vaporized. In addition to preventing liquid refrigerant from entering the compressor, the separator helps to obtain the full heat carrying capacity of all the refrigerant being circulated through the system.

### Flooded Evaporators

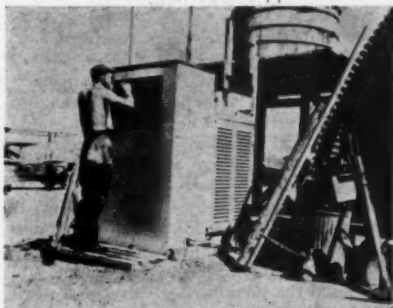
Flooded evaporators consist of a number of tubes connected in parallel loops between one or two headers. When two headers are used, they are cross-connected. The Cold-spot flooded evaporator used two headers as shown in Fig. 35. It is formed of stainless steel which is pressed to form both headers and the parallel tubes. All of the tubes and the lower half of both headers are filled with liquid refrigerant at all times. A dryer coil serves the purpose of a separator to prevent liquid from being drawn into the compressor. A float valve controls the flow of refrigerant into the flooded evaporator.

(To be continued in next issue.)

## SEABEES, ARMY TROOPS PLEDGE FRIENDSHIP WITH ICE WATER

**A** FRIGID reception is generally the end of a friendship, but it works just the other way around on a number of South Pacific islands where Army and Navy forces are stationed.

There the former sharp rivalry between Navy Seabees and Army troops has melted into friendship, ever since the ingenious Seabees found a way to obtain a continuous supply of ice cold drinking water.



A Seabee in the South Pacific slakes his thirst with ice water obtained by ingenious use of a Carrier refrigerating unit and home-made water tank.

Concentrating on the cold water problem, men of a Naval Construction Battalion obtained permission to use a portable Carrier refrigeration unit, one of several supplied to the outfit for refrigerating food. It was up to them to solve the problem of a running water supply.

This was done by constructing a circular, wooden storage tank, which was placed on a raised platform about 12 feet from the ground, and filled by hand. From the tank water was fed through a pipe by gravity to the refrigerating unit, and emerged from a tap ice cold.

The generous Seabees did not keep their treasure to themselves, but permitted the Army personnel to share it, although they did put up a sign "No Five Gallon Cans Filled."

The cold water proved to be excellent Jap bait. One night the Seabees found that several of the enemy had crawled through the lines to sample the ice water. It was their last drink.

Since the first successful installation at Tarawa, others have appeared in the Gilberts, the Marshalls, and the Marianas.



# SERVICE POINTERS

## Practical Solutions of Your Service Problems

**EDITOR'S NOTE:** Here are additional contributions submitted in the Service Pointers Contest. Others will appear in the next and following issues.

### GAUGE READING MAY BE MISLEADING

I was called on to service a 20 apartment system to which is connected a 1 horsepower water cooled Frigidaire. The motor insulation had burned. After installing a rebuilt motor and starting it, I noticed that it could not get up to running speed. Electrical connections and voltage at the motor terminals proved to be correct.

Conditions reflected by the gauge showed between 50 and 60 pounds on the high side. I then checked the compressor for efficiency and found the discharge valves leaking. I then closed the suction riser valves and permitted operation on one riser only. The motor would handle the load with a limited number of evaporators.

The next step was to remove the discharge valve plate. Here is where I found the trouble. Checking for valve lift, I found the reed valves and reed buttons corroded to the retainer plate and seats. The pressure was building up so high in the cylinder at each stroke that the motor could not pull the load. A new valve plate removed all difficulties. Submitted by J. A. Stoller, Tutley, N. J.

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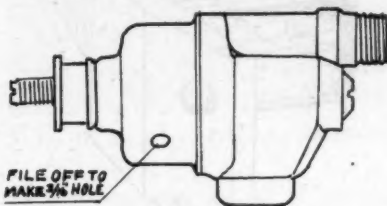
### CLEANING INTERNAL STRAINER

A temporary procedure for unblocking a strainer when located inside the liquid receiver is to stop the unit and heat the liquid line with a blow torch. This will cause the liquid in the line to expand and increase in pressure to a point where the flow through the strainer will be reversed. Foreign matter will be dislodged and will fall away from the strainer.

Complete elimination of the trouble will require the refrigerant charge to be removed and the receiver cleaned with carbon tetrachloride, at the same time removing the strainer and installing a new one externally. Submitted by C. Asaka, Newell, Calif.

### PREVENTING EXPANSION VALVE BELLOWS FROM FREEZING

I HAVE found freezing on the external side of the bellows can be prevented in automatic expansion valves used on Cold-spot and other similar types by the following method: File off the solder sealing the hole in the bellows cover. Continue to file until the hole is about 3/16 inch in diameter, being very careful not to scratch the bellows.



Obtain a small ear syringe from the drug store and fill with carbon tetrachloride. Flush the bellows chamber by inserting the syringe, being sure to spray the entire bellows to wash the water from it. The rubber cap over the valve adjustment must be removed during the flushing operation.

When sealing the hole, first tin the edges with a soldering copper, then cut a small piece of brass or copper sheet and sweat over the hole. The valve need not be removed to make the repairs. Submitted by George Russell, Kirkwood, Mo.

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### MOISTURE NOT ALWAYS THE TROUBLE

The most common trouble is moisture freezing expansion valves shut. But restrictions such as screens in valves will cause practically the same trouble. For instance, a job that gave me a lot of trouble until I located it was a back pressure check valve in suction line, that had a defective washer in it. It acted just like moisture in system. The best thing to do if you do not locate where the moisture is freezing, start checking for restrictions in either suction or liquid line. Submitted by Ervin Grace, Columbus, Ohio.



# QUESTIONS AND ANSWERS

On Problems of Servicing, Installation and Maintenance of Household and Commercial Refrigerating Equipment—Send Your Problems to the Question Box.

## COMMENTS ON QUESTION 641

All of the Norge "CM" models that come into our Service Department have the refrigerant charge evacuated and the system is thoroughly cleaned. We have found that a white wax forms in the capillary tube, thus restricting the flow of refrigerant. We have also found that the high side float has often been changed in the field, in an effort to eliminate the above trouble. In most cases, changing the float is not necessary.

Before recharging the system, we by-pass the small tubing where the F-12 entered the refrigerated shelf. The unit is then recharged with SO<sub>2</sub> only. The charge is critical and the amount of SO<sub>2</sub> to use is as follows:

S5 Model 592 unit 2 lbs. 4 oz. SO<sub>2</sub>

S6 Model 692 unit 2 lbs. 6 oz. SO<sub>2</sub>

S8 Model 892 unit 2 lbs. 8 oz. SO<sub>2</sub>

The oil charge in each unit is 16 to 18 fluid ounces. We trust this may be of assistance to other servicemen.—T. A. TRAN

## COMMENTS ON QUESTION 651

In reference to question 651 of "Questions and Answers" concerning dead spots in R-I motors, I agree with you that it is mostly caused by a bad necklace and would like to state further that when you find a motor with a bad necklace, it is a good idea to check the armature. You will usually find that where the necklace short circuit against the armature that it is pitted too, and if you do not put it in a lathe and true it, in a short time the new necklace will go bad and there will be a call back. I have found that only about one out of three motors with a bad necklace has a pitted armature, but with labor shortage, it pays to take a little longer to fix it right than to have a call back in a short time with the same trouble.—ANTHONY FAMA.

## UNITS NOT RATED IN CUBIC FEET

QUESTION 661: What is the capacity in cubic feet of refrigerated space for low temperature work that a 1/2, 3/4, and 1 h.p. unit will take care of?

ANSWER: The capacity of a condensing unit required on a given size refrigerated

space cannot be determined by the simple comparison of cubic feet to unit size. Some applications of low temperature require 25 h.p. or more on a 10 cubic foot box while others may only take a 1/2 h.p. unit. The heat leakage must be figured and added to the product load and usage factor.

For temperatures of -10° F., the following capacities are average for several makes. Using methyl chloride in 1/2, 3/4, and 1 h.p. units, they will remove 2,200, 3,400, and 4,400 B.t.u. per hour respectively. If Freon-12 is used, these units will have capacities of 2,300, 3,500, and 4,800 B.t.u. per hour.

## PRESSURE TEST WITH CO<sub>2</sub> AND F-12

QUESTION 662: The following recommendation is made for testing Freon systems without using a large quantity of refrigerant: Charge the system with about 2 per cent of its normal charge to test for large leaks; then build the pressure up to about 200 pounds per square inch with CO<sub>2</sub> and test with a halide torch. Some of the men with whom I work contend that this method is not satisfactory because when the Freon is subjected to the additional pressure of CO<sub>2</sub>, the Freon will condense into a liquid. Others of us believe that the Freon will remain in suspension and escape with the CO<sub>2</sub> to react with the halide torch flame. Who is right and why? We have been unable to find any published data to prove either contention.

ANSWER: I believe the authority for this answer can be found in many text books and refrigeration or air conditioning reference books. The law pertaining to mixtures is known as Dalton's Law of partial pressures. This law is stated in the April issue of THE REFRIGERATION SERVICE ENGINEER on page 23. For practical purposes and until experiments have been completed, Dalton's Law holds that when the CO<sub>2</sub> is introduced into the system containing F-12, the total pressure is the sum of the two independent pressures. For example, if the system is at 70° F. when the CO<sub>2</sub> is introduced to raise the pressure to 200 pounds per square inch, the F-12 will still have a pressure of 84.81 pounds per square inch, absolute and the CO<sub>2</sub> will have a pressure of 129.88 pounds

per square inch, absolute, making a total pressure of 214.69 pounds per square inch, absolute. If the temperature changes, the pressure will also change in accordance with the sum of the saturated F-12 vapor pressure and the pressure change in the CO<sub>2</sub> as expressed by the laws of Boyle and Charles.

### CONNECTING FOR F-12 TRANSFER

**QUESTION 663:** Kindly describe several methods to transfer the Freon-12 charge from one 60 ton air conditioning system to another adjoining similar system when the charge on both systems is too low to operate either one. We desire to draw on one system to operate the other as required.

**ANSWER:** The first step will be to find and repair all leaks in both systems. When this has been done, pump down both systems and install a tee in each liquid line. Put a 2-way line valve in the new line connecting the two liquid lines together. This valve need not be full liquid line size because it will only be used for transfer purposes.

When refrigerant is to be transferred, the receiver valve on the operating machine is closed and the other receiver valve is opened. This will prevent the refrigerant from passing over into the idle receiver as it might if the operating pressure is in the liquid line during the transfer.

When sufficient refrigerant has been transferred, it will be advisable to close the idle receiver valve and pump the remaining refrigerant from the low side and store in the receiver. Placing both machines in service again can be done by closing the installed line valve.

### CARBON DIOXIDE FOR DRYING

**QUESTION 664:** Is CO<sub>2</sub> considered dry as obtained in cylinders such as those used for carbonated beverages? Can it be satisfactorily used for blowing out F-12 refrigeration coils after washing them with carbon tetrachloride? If it is used, the coils will cool considerably and even partially frost. Will this necessitate immediately sealing the ends of the coils to prevent air from entering and moisture condensing within?

**ANSWER:** Carbon dioxide as put up for commercial use is considered dry; therefore, it can be used for drying refrigeration systems without danger of contamination with water. I would suggest you permit the CO<sub>2</sub> to pass through the coil more slowly to avoid the temperature drop. Any gas, whether it be CO<sub>2</sub>, nitrogen or air will freely mix with

any other gas in proportion to the percentage of each gas present. The water vapor pressure in the air will enter the tube if it is not sealed because no vapor pressure exists in the bone dry coil containing CO<sub>2</sub> gas.

### MOLD IN COOLER

**QUESTION 665:** A customer of ours has a farm storage box and a freezer box that gave him considerable trouble last summer; that is, the walk-in box did. This box is about ten by twelve feet and is used for the storage of meat and leftovers from the table at his boarding house where his ranch hands get their meals.

This walk-in box has a large Larkin blower unit in it and the temperature is kept at 38° F. and seems to keep most everything in good condition if it is not kept in the box any longer than about two days. After this, a mold begins to appear and if meat is left about four days, it will be covered with mold to such an extent that no one can tell what it is only by the shape of it. They had three, fifty pound boxes of dried peaches in this box covered with cardboard, and when the cook went in to get some, they were not fit for use after being in the box about five days.

We have been asked to try and do something about this condition and see what can be done to remedy it. We are rather at a loss to know what should be done, as we haven't found this condition anywhere before. We thought that it could be possible that the evaporator is too large for the box causing a high humidity condition, although the air in this box doesn't feel as though there was a great amount of moisture present.

**ANSWER:** In trying to visualize your problem of mold in the cooler, I have taken for granted that it is a very serious condition and may even be in evidence on the cooler walls.

The following procedure is suggested: First have the cooler defrosted and permit it to stand open for 3 or 4 days. Installing a fan in the cooler or permitting the fan to operate from the blower unit will circulate the air and change it frequently if the door remains open. The next step would be to thoroughly wash the walls and remove the floor treads, washing them as well as the floor. I would suggest a relatively strong solution of clorox for this washing operation. When the walls have thoroughly dried, apply trisodium phosphate and then varnish the walls and ceiling with a good grade of Spar varnish. This procedure should eliminate all of the mold growth, although it may

not be a permanent remedy, due to the type of food handled or the conditions under which it is delivered.

It might be advisable to install an ultraviolet ray lamp to kill the bacteria and mold before it becomes too prevalent.

There is one possible reason in the design of the equipment for the formation of mold. This is the size or location of the blower unit. If the blower unit is oversize or there are dead spots in the air circulation, mold is likely to result.

## CHANGING TO DIRECT EXPANSION

**QUESTION 666:** I should like your advice on the following: I have an installation consisting of a 3 h.p. General Electric Freon unit which cools 2 brine tanks containing calcium chloride brine. One of these is an Esco ice maker which holds 12 cans that make about 40 pounds per can. The brine temperature runs approximately 15 to 20 degrees F. The other tank is about 4x4x5 feet high from which brine is circulated to 3 small coolers approximately 4x6x8 feet high. They maintain an average temperature in these coolers of 38 degrees F. They have had considerable trouble with the wall adjacent to the large brine tank. The engineer claims that he has not had to add to the brine but the wall next to the brine tank (that is the other side of the wall) keeps staining and deteriorating and will not keep a coat of paint. They are now planning to dismantle the tank and if the trouble is caused either by brine leaking or condensation, they plan to move the tank or the wall to provide an air space between the two. What I should like to know is whether or not it would be feasible to remove the tank entirely and operate the coolers on direct expansion and still maintain the brine bath that is required in the ice maker. Would it be possible, without encountering too many complications, to operate the system both as an indirect and a direct refrigerating system? Any help you can give me will be appreciated.

**ANSWER:** I do not know the characteristics of the load imposed on the refrigeration system. However, if the load is normal in the three coolers, I believe they could be cooled by direct expansion.

The present brine circulating coils would not be of any value because they could not be dehydrated and properly cleaned for use with refrigerant. New evaporators would be required and the temperature of the evaporators would have to be controlled by a

two temperature valve in the main suction line from the coolers.

In all probability, the wall deterioration is due to no vapor barrier on the warm side of the insulation. This permits water vapor to pass through the wall and on into the insulation.

## CAPACITY BASED ON SUCTION PRESSURE

**QUESTION 667:** Would you please inform me as to the conventional method of figuring the capacity by knowing the rated horsepower?

**ANSWER:** All manufacturers have more or less agreed that the capacity of a condensing unit can only be rated in Btu's per hour at a given suction temperature. It is common practice to state that a Freon condensing unit applied to air conditioning temperatures will produce approximately one ton of refrigeration per horse power. This same unit or one designed for low temperature work using a 1 H.P. compressor might only have a capacity of  $\frac{1}{3}$  ton or less, depending upon the suction temperature. In all cases of unit selection, it is advisable to refer to the manufacturers specifications for capacities.

## ACID FOR CLEANING STUCK COMPRESSOR

**QUESTION 668:** I have a Norge unit that has stuck up and has not been in service for a year. The rollator and other parts are badly coated with the formation caused by wet SO<sub>2</sub>. I would like to know what chemicals to use and how to use them to remove the corrosion.

**ANSWER:** Referring back to a previous issue of THE REFRIGERATION SERVICE ENGINEER, we find the following procedure is recommended by one authority for cleaning up SO<sub>2</sub> compressors.

The first step in the cleaning process is the removal of oil by boiling the parts in a lye solution for about one hour. After removal from this bath, the parts should be thoroughly washed in clean water, then dipped into a second bath of 50-50 solution of muriatic acid. It may be necessary for the part to remain in the acid bath for 4-5 hours before complete cleaning is accomplished. On removal from the acid bath, the parts should be thoroughly washed and immediately dried to prevent oxidation.

Observe due caution in handling the acid by wearing goggles to prevent possible splashing and injury to your eyes.

## Food Stores Plan to Buy Refrigeration Equipment

FOUR out of five independent retail food merchants will improve their present stores or build new stores at a total cost of over a half billion dollars as soon as supplies, labor, and store equipment become available, according to nationwide study recently completed by The Progressive Grocer.

Major objectives of these food store plans are (1) to improve and extend self-service (2) to improve quality and increase efficiency in the sale of perishables (meats, produce, dairy products), (3) to make stores more pleasing to consumers and (4) to attain a low cost of operation in order to be competitive under any circumstances.

Although the attached table gives a comprehensive report on plans of stores now in operation, they do not reflect the needs of the thousands of new stores to be opened by returning servicemen and released war workers when hostilities cease. During the three war years, the number of food stores declined 81,000 or 12½ per cent. A conservative estimate is that a minimum of 50,000 new stores will be opened and the equipment requirements and improvements to be made by these stores will be in addition to the activity indicated by this study.

Of the 2,754 merchants who participated, the figures below indicate the per cent that will buy or are interested in each of the following refrigeration items.

	Plan to Buy %	Avg. No. Per Store	Not De- cided %	Avg. No. Per Store
Walk-In Cooler ..	14.3	1.0	11.4	1.0
Meat Case .....	12.3	1.3	8.0	1.1
(Standard Type)				
Meat Case .....	4.8	1.6	5.5	1.3
(Open, Self-Serve)				
Frozen Food Case	10.3	1.1	9.9	1.0
(Pre-War Type)				
Frozen Food Case	12.2	1.1	11.7	1.0
(Open, Self-Serve)				
Dairy Case .....	9.2	1.0	7.9	1.0
(Wall Type)				
Dairy Case .....	5.0	1.1	4.2	1.0
(Floor Type)				
Refrigerated Prod- uce Case .....	11.2	1.1	13.3	1.0
Bottled Bever- age Cooler .....	6.5	1.0	5.0	1.0
Compressors .....	7.8	1.6	2.8	1.2
Of total refrigeration units to be purchased by stores surveyed, stores with				
3 or less employees will buy.....				31.5%
4 to 6 employees will buy.....				35.1%
7 to 10 employees will buy.....				18.1%
More than 10 employees will buy...				15.3%
				100.0%

## Floating Refrigerator of Concrete Aids Pacific Invasion

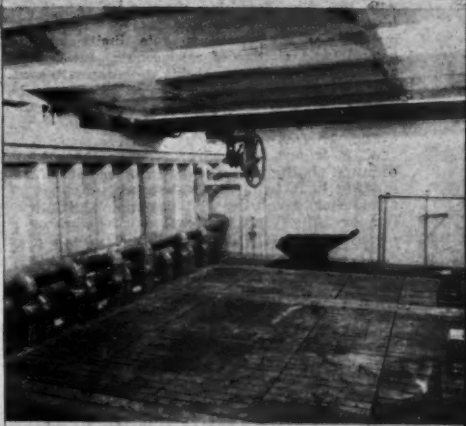
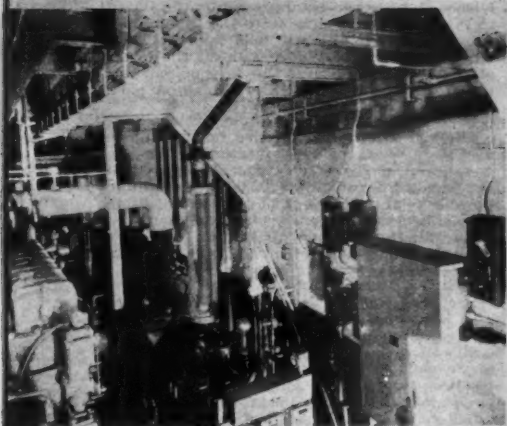
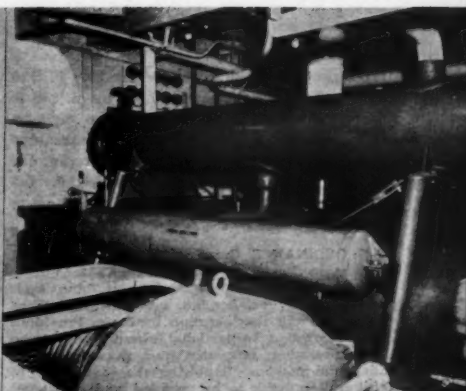
THE first all-concrete refrigerated cargo carrier which will supply U. S. invasion troops with fresh food during initial landing operations, has been completed near Los Angeles and is now in action somewhere in the South Pacific. Engineered and equipped by York with a unique cold storage system for fresh meat and produce, the new refrigerated barge is one of three such vessels to be built for the United States Army in the yards of the Concrete Ship Constructors at National City, California.

First barge of its type ever built, the new vessel is 265 feet long with a 48-foot beam. The concrete walls of the hull are five inches thick. Refrigerated storage capacity amounts to 122,000 feet and includes a plant capable of turning out 500 gallons of ice cream a

day while in a fighting zone, and another plant to produce five tons of ice daily.

### Refrigerator in Center

Central portion of the deckhouse, 225 feet long, is virtually a huge refrigerator with thick walls heavily insulated and massive outside doors. Inside, a temperature of 32 to 36° F. will be maintained. Below decks, holds will be kept at temperatures of 10 to 15° F. A monorail system of conveyors runs the length of the ship, its travelling crane and switches able to lift a two-ton bite of cargo at a time. A total of 400 horsepower are developed by the ship's Diesel engines which run the cranes, unloading equipment, refrigerating compressors and other machinery.



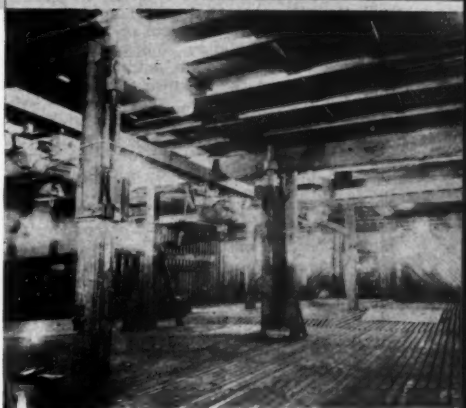
Top left: Machinery room showing one of the main 53-ton York 63x5 in. eight cylinder compressors driven by a 125 hp. G.E. marine motor.

Top right: View of machinery room showing York condenser, receiver and brine cooler.

Bottom left: View of machinery room looking forward. One of the main 125 hp. Worthington Diesel engines for driving the 100 kw. generators is shown at the left.

Center right: Five-ton marine-type ice making plant in forward compartment. Can dump, dip tank, ice chute, crane and hoist in background. Agitators and Burns automatic can filler are shown along right-hand side.

Bottom right: View of one main deck refrigerated compartment showing monorail system and hoists for cargo handling. The sloping enclosure along left-hand bulkhead is main air supply duct with outlets and floor gratings.





# San Antonio Committee Drafts Ordinance

This proposed ordinance for the City of San Antonio, Texas, is published here as an aid to refrigeration men in other cities who may be or are contemplating working on an ordinance of a similar nature. This proposed ordinance was drafted by a committee representing the San Antonio refrigeration and air conditioning industry.

**AN ORDINANCE** Creating the Examining and Supervising Board for Refrigeration Mechanics, designating its members and prescribing their powers and duties, Bonding and Licensing those engaged in the Refrigeration Business, Providing for Refrigeration Inspections; creating the office of Refrigeration Inspector and prescribing his duties and powers. Requiring those engaged in Refrigeration work to be certified and registered with the city. Requiring permits for certain refrigeration work. Providing for the manner of installation; the minimum safe limits for the transfer and storage of refrigerants. Prescribing penalties for violations of this ordinance; Repealing all ordinances and parts of ordinances in conflict herewith and declaring an emergency.

## Sec. 1. Definitions:

A. *Refrigeration* as referred to in this ordinance shall mean the process or act of removing heat from any substance or space in a manner involving the expansion, vaporizing or liquefying and/or compression of a gas or fluid. B. *Refrigeration Equipment* as referred to in this ordinance shall mean any appliance, apparatus, device or assembly of parts, tubes, fittings, tanks and/or machines used to confine, conduct, vaporize, liquefy and/or compress a liquid or gas for the purpose of refrigeration. C. *Refrigeration work* as referred to in this ordinance shall mean the act of constructing, installing, moving, altering, repairing and/or servicing any refrigeration equipment as referred to in this ordinance. No part of this ordinance shall be construed to prohibit, control or regulate the manufacture, rebuilding, fabricating or assembling of refrigeration equipment within any plant or on the premise of any regular manufacturer, rebuilder, fabricator and/or assembler of refrigeration equipment. D. *Refrigeration System* as referred to in this ordinance shall mean all the machines, compressors, devices, equipment, connections, fittings, pipes, tubes, coils and controls containing or used to conduct a liquid or gas refrigerant which in its vaporizing or condensing cycle is used to extract heat for the purpose of cooling any substance, or space either for the purpose of food preservation, comfort air conditioning or industrial processing. E. *Business of Refrigeration* as referred to in this ordinance shall mean the act of offering for sale, trade or lease any refrigeration equipment. Such business establishments subject to licensing and bonding.

Sec. 2. *Business of Refrigeration:* Every person, firm or corporation desiring to engage in the business of selling, leasing, constructing, installing, altering, disassembling, assembling, repairing and/or servicing any refrigeration system or equipment as defined in this ordinance in any building, structure, public or private premise or grounds within the City of San Antonio shall first file with the City Clerk an application to engage in said business, pay a license fee, post the bond, and in certain instances as hereinafter prescribed qualify by examination for a certificate of competency to do certain work.

Sec. 3. *Bond:* Before approval of any such application to engage in said business applicant shall give a good and sufficient Surety Bond in the sum of One thousand (1,000.00) Dollars, executed by a recognized Surety Company to be approved by the Board of Commissioners, payable to the City of San Antonio and conditioned that said applicant will comply in good faith with all the terms of the Building Code of the City of San Antonio, Texas, of which this becomes a part.

Sec. 4. *License Fee to Engage in Business of Refrigeration:* The license fee to engage in the business of refrigeration within the city limits of the City of San Antonio shall be twenty-five dollars (\$25.00) per annum payable to the city clerk at the time of filing of application. License shall be renewed upon filing of proper application and payment of twenty-five dollars (\$25.00) annually thereafter.

Sec. 5. *Revocation of License:* Any holder of a license to engage in the business of refrigeration as defined in this ordinance found guilty of violating any part or section thereof through regular process of law may have his license suspended for a limit of time, entirely revoked and/or be fined and/or serve a jail sentence as prescribed in the San Antonio Building Code of which this shall be a part.

Sec. 6. *Designation of Place of Business and Vehicles:* Each application for a license to engage in the business of refrigeration shall show street and street number of established place where applicant expects to carry on such business.

Applicant shall upon receipt of his license, receive a license number which number along with established and recorded name of firm, corporation or person shall be displayed at such place of business and on all trucks or vehicles used by him, his or their employees in carrying on such work or activities covered by this ordinance. Any person, firm or corporation not having obtained said license and posted said Bond within thirty days of date of passage of this ordinance shall if found guilty in due process of law of violating any of the provisions of this ordinance be fined in an amount as provided for in the Building Code of San Antonio, Texas.

Sec. 7. *The Examining and Supervising Board of Refrigeration Mechanics:* That there is hereby created a Board for the examination of Refrigeration mechanics within the city limits of the City of San Antonio to be known as the Examining and Supervising Board of Refrigeration Mechanics. Said Board shall consist of seven members consisting of the City Engineer, the City Fire Marshal and the City Health Officer all whose terms of service on said Board shall continue through their terms of office. Two members shall be employers in the refrigeration business for no less than five (5) years and two journeymen with no less than five (5) years' experience at constructing, installing, and servicing refrigeration systems and equipment. These last four members shall be appointed by the Mayor and City Council within five (5) days after this ordinance takes effect. Their terms of office shall expire on the date of the next election of City officials. If any vacancies shall occur in said Board such vacancies shall be filled by the Mayor and City Council for the unexpired term. Members of said Board shall meet within ten (10) days of date of enactment of this ordinance; shall elect a president and secretary whose duties shall be to keep records of all applications, examinations, certificate issuances, and renewals and other activities of said Board and of all fees received and to pay them into the City Treasury as soon as is practical after receipt of same.

Said Board shall set up suitable examinations for Master and Journeymen mechanics' Certificates of Competency; shall receive applications, interview applicants and recommend applicants for Inspector of Refrigeration Equipment and Systems for appointment by Mayor and City Council.

Board shall and is hereby empowered to revoke the Certificate of Competency of any Master or Journeyman Refrigeration Mechanic or any Certificate of Refrigeration of any apprentice for cause. The Board shall and is hereby empowered to adopt suitable regulations and set procedure providing for a public hearing upon presentation of written complaints appeals or petitions from mechanics or the public.

The Board shall receive petitions for, investigate and recommend to Mayor and Council any additions or changes in this ordinance, that may be necessary to keep it up to date.

The Board shall make inspections of suspected hazardous or unhealthy refrigeration plants or systems as defined in this ordinance and shall file complaints in the proper courts if necessary to correct said conditions.

Sec. 8. *The Refrigeration Inspector:* That there is hereby created the office of City Refrigeration Inspector which Inspector shall be appointed by the Mayor and Commissioners in a regular session of the City Council. Applicants to the office of City Refrigeration Inspector must have no less than seven (7) years of active experience at refrigeration work as defined in this ordinance, not less than two (2) years of which experience shall be in the City of San Antonio. Applicants to this office must file application with the Examining and Supervising Board of Refrigeration

mechanics which Board shall subject applicants to such examination as they see fit and make their recommendation to the Mayor and Commissioners. The Inspector shall sever any direct or indirect connections or financial interest in any Refrigeration Business within 60 days after assuming his duties as Refrigeration Inspector.

Sec. 9. *Duties of City Refrigeration Inspector:* The City Refrigeration Inspector shall have entire supervision over the inspection of all Refrigeration work within the City of San Antonio, Texas. The Refrigeration Inspector shall, upon application on the proper forms, grant permits for the installation of Refrigeration Systems devices and equipment, and upon the payment of the required fees he or his assistants shall make inspections of all new Refrigeration Installations and make re-inspections of any existing Refrigeration installations at such time as he may deem necessary for the purpose of the safeguarding of life and property within the City of San Antonio, Texas.

Sec. 10. *Authority:* The Refrigeration Inspector shall have the right to enter any building during reasonable hours in the discharge of his official duties for the purpose of making any inspection or test of any Refrigeration work, devices or equipment therein and where such installations are found dangerous to life or property or not in conformity with existing Ordinances, he is hereby empowered to disconnect or shut off and seal such equipment or devices after having given notice in writing to the parties concerned.

Sec. 11. *Tests:* No refrigeration work shall be hidden from view in any manner including pipe covering, flooring or enclosed in walls until the Refrigeration Inspector has inspected and passed upon same. All piping on systems of more than 25 lbs. of refrigerant charge by weight must be subjected to a pressure test using dry carbon dioxide or nitrogen under a pressure exceeding the highest working pressure that system is liable to by fifty (50) pounds. This test must be on the piping with a suitable gauge mounted when the Inspector is called for inspection. Large systems using long and complicated runs of piping and tubing may be inspected in sections, however, the same pressure test as herein described shall be put to each part of the system after which a final pressure test shall be put to the system as a whole. A final inspection when job is operating shall be made before final approval is given.

Sec. 12. *Permits for Refrigeration Work Required:* No refrigeration work as defined in this ordinance shall be done or caused to be done by any person, firm or corporation nor shall any person alter, move or change any system where alterations, changes or replacements are made of compressors, condensers, evaporators or refrigerant connections other than motors, controls or fixtures, without first having filed for in the manner hereinafter prescribed and obtained a permit from the Refrigeration Inspector and having paid the fee as hereinafter provided for.

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Work of an emergency nature may proceed up to the point where safety to life or property is no longer a factor; however, no work may be covered up or hidden from view until proper permits, inspection and approval has been granted by the Inspector.

Permits to do any refrigeration work as defined in this Ordinance shall be granted only to persons holding a Master Refrigeration Mechanic's Certificate of Competency then in force. Such permit shall show license number of business causing work to be done, name and certificate number of Master Refrigeration Mechanic in charge of or doing the work, street name and number of place where work is to be performed, size of job in rated tons of refrigeration and cost of such permit.

Such permit shall be kept at the location where the work is to be performed. Failure to present permit site of job upon demand by the Refrigeration Inspector shall be a violation of this ordinance.

**Sec. 13. Permit Fees:** All refrigeration work as herein described shall be subject to a permit fee as follows: From  $\frac{1}{2}$  ton up to and including 1 ton capacity, \$1.00; over 1 ton up to and including 5 tons capacity, 50c each additional; over 5 tons up to and including 10 tons capacity, 25c each additional; over 10 tons, 10c each additional. No permit fees or inspection is required for self contained units of less than  $\frac{1}{2}$  ton capacity. However on request of owner, lessee, tenant or Health officer such inspection shall be made for a \$1.00 fee.

**Sec. 14. The Master Refrigeration Mechanic:** Any person having served four (4) years as an Apprentice Refrigeration Mechanic plus three years as Journeyman Refrigeration Mechanic in a manner as prescribed in this ordinance and having applied for the examination; passed same with a grade of no less than 75% correct, and having paid the \$5.00 fee is entitled to hold a Master Refrigeration Mechanic's Certificate of Competency provided he pay the renewal fee of \$5.00 annually.

Such Certificate of Competency shall entitle holder to present himself to the public as one certified by the City of San Antonio to be skilled in the planning, superintending and the practical installation, servicing and repairing of refrigeration systems as defined in this ordinance, provided he has or his employing firm or corporation has paid the annual license fee and has furnished such bond as heretofore described.

Such person, holder of a Master Refrigeration Mechanic's Certificate of Competency shall be responsible for all work for which permits have been granted bearing his certificate number. He may personally engage in Refrigeration work and/or hire out to others to do such work.

**Sec. 15. Relation Between Licensee and Master Refrigeration Mechanic:** Licensed and bonded persons, firms or corporations having in their employ or having as one member a holder of valid Master Refrigeration Mechanic's Certificate shall enter the name of holder of such certificate and his certificate number on all Refrigeration work

permits applied for. Where a holder of such certificate severs connections with party or parties licensed and bonded said Holder of certificate shall not engage in business on his own until he has obtained proper license and posted the Bond. Persons, firms or corporations shall not engage in Refrigeration work without having in their employ or as one of their officers or members a holder of a Master Refrigeration Mechanic's Certificate of Competency.

**Sec. 16. Persons Now Engaged in Refrigeration Work:** Persons now actively engaged in Refrigeration work and desiring to qualify for a Master Refrigeration Mechanic's Certificate of Competency shall within thirty (30) days of the date of passage of this ordinance file application with the aforesaid City Examining and Supervising Board of Refrigeration Mechanics, stating thereon their qualifications and experiences. A majority affirmative vote of said Board on such application shall entitle applicant to Master Refrigeration Certificate of Competency provided the fee of \$5.00 is paid with his application.

After thirty days of date of passage of this ordinance all persons desiring to qualify for a Master Refrigeration Mechanic's Certificate of Competency shall be subject to examination as heretofore provided.

**Sec. 17. Journeyman Refrigeration Mechanic's Certificate of Competency:** No person or persons shall hereafter engage in the occupation of or do any refrigeration work as defined in this ordinance as a journeyman refrigeration Mechanic inside the city limits of the City of San Antonio without first having secured a Master Refrigeration Mechanic's Certificate and/or a Journeyman Refrigeration Mechanic's Certificate from the Examining and Supervising Board of Refrigeration Mechanics. Exception: Qualified welders shall be allowed to weld the joints of Refrigeration systems of Ten tons capacity and larger when under the direct supervision of a Certified Refrigeration Mechanic.

**Sec. 18. Persons Now Engaged in Work as Journeymen:** Persons now actively engaged in Refrigeration work and desiring to qualify for a Journeyman's Certificate of Competency shall within thirty (30) days of the date of passage of this ordinance file application with the City Examining and Supervising Board of Refrigeration Mechanics, stating thereon their qualifications and experiences. A majority affirmative vote of said Board on such application shall entitle applicant to a Journeyman Refrigeration Mechanic's Certificate of Competency provided the fee of \$3.00 is paid with the application.

After thirty (30) days of date of enactment of this Ordinance applicants shall be subjected to an examination in the practical and theoretical aspects of Refrigeration Installation and servicing as defined in this Ordinance. A grade of seventy-five (75) per cent or better shall entitle applicant to a Certificate of Competency.

**Sec. 19. Identification of Journeymen:** Journeymen Refrigeration Fitters shall be issued a Certificate of Competency and a metal



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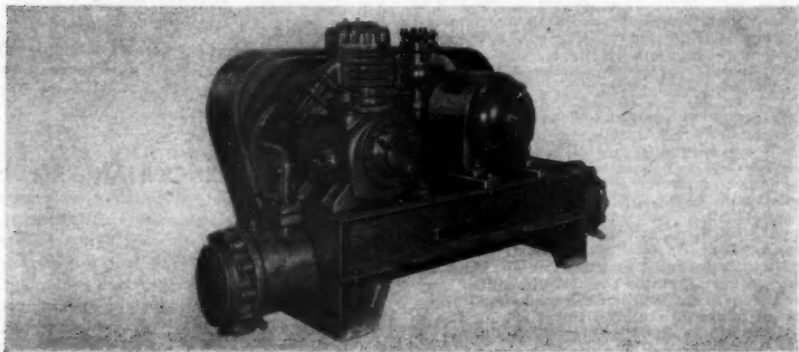
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button or card bearing their license number which number must be displayed or carried on their person whenever and wherever any work as covered in this Ordinance is performed.

**Sec. 20. Journeyman Refrigeration Mechanics:** Journeyman Refrigeration Mechanics as defined herein, shall not contract, advertise, or do any work on any refrigeration equipment as defined in this Ordinance unless in the employ of or under the supervision of a Bonded Licensed Master Refrigeration Mechanic. After thirty (30) days of date of acceptance no application for a Certificate of Competency as Journeyman Refrigeration Mechanic shall be accepted from applicants not having served four years as an apprentice Refrigeration Mechanic, or not having met the minimum school requirements as set up by the Examining and Supervising Board. Failure to renew said certificate within thirty (30) days of date of expiration shall cancel Journeyman's Certificate of Competency and require said Journeyman to pass another examination to qualify for another Certificate of Competency.

**Sec. 21. Apprentice Refrigeration Mechanics:** No person shall hereafter engage in the occupation of or work as an apprentice on the construction, installation, alteration, repair or servicing of Refrigeration systems or equipment as defined in this Ordinance anywhere in the City of San Antonio without having first secured from the Examining and Supervising Board of Refrigeration Mechanics a Certificate of Registration as an Apprentice Refrigeration Mechanic. At the expiration of four (4) years of service on such work as the Board shall designate in addition to a minimum number of hours of instruction as outlined by the Board the Apprentice shall be eligible to apply for a Journeyman Refrigeration Mechanic's Certificate of Competency.

All apprentices shall be registered in compliance of State and Federal Apprenticeship Requirements. The Apprentice Refrigeration Mechanic shall work only under the direct supervision of a certified Master Refrigeration Mechanic or a Certified Journeyman Refrigeration Mechanic as set forth in this Ordinance.

**Sec. 22. Ratio of Apprentices:** Each Licensed and Bonded Firm or Master Refrigeration Mechanic may have one Registered Apprentice in their or his employ and one additional for every two licensed Master or Journeymen employed.

**Sec. 23. Helpers and Laborers:** Helpers and laborers as defined in this Ordinance shall not construct, install, alter, repair, or service any refrigeration system or equipment but under the supervision of a Bonded Master or Licensed Journeyman Refrigeration Mechanic may assist in placing equipment, cut holes in concrete, drive trucks or any other work not directly constructing, installing, altering, repairing, or servicing refrigeration systems or equipment. Any helper desiring to learn the trade shall apply as an apprentice to the Board which Board shall evaluate his past experience in terms of Apprenticeship and if accepted by said

Board shall abide by their directions as to his school and practical experience. In no case shall more than two years' credit be given.

**Sec. 24. Special Clause for War Veterans:** All Veterans of World War II having been in the Armed Forces or any branch of the government Armed Forces and who were actively engaged in Refrigeration work as defined in this Ordinance prior to their joining or while in the Armed Forces shall not be subject to acquire their Certificate of Competency until a period of thirty (30) days after their release from the service. Such persons as above described shall file a record of their employment and activities relating to refrigeration work while in civilian life and while in the Armed Forces along with their application which experience shall total not less than four (4) years for a Journeyman's Certificate of Competency or seven (7) years' experience for a Master Certificate of Competency. Applicants having less than four (4) years' experience shall be given credit on their apprenticeship.

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## NEVADA SURVEY SHOWS BIG MARKET FOR REFRIGERATORS

RESIDENTS of Nevada will spend a total of \$164,841 for new refrigerators after the war, according to a survey by the Nevada Employment Security Department, which found that 10,000 residents of the state expect to spend a total of \$11,421,771 for homes, cars, furniture, radios, refrigerators and other consumer goods.

The contemplated outlays for new refrigerators were broken down by counties as follows: Churchill, \$6,620; Clark, \$34,153; Douglas, \$3,580; Elko, \$27,329; Esmeralda, \$2,051; Eureka, \$2,267; Humboldt, \$7,610; Lander, \$992; Lincoln, \$8,741; Lyon, \$6,988; Mineral, \$10,456; Nye, \$10,804; Ormsby, \$5,108; Pershing, \$7,425; Washoe, \$19,179 and White Pine, \$10,998.

The Nevada market for new refrigerators will be further broadened by plans for spending for new homes, which, with a total of \$2,905,611, topped the list of contemplated postwar spending. Nevadans also plan to spend \$391,288 for building apartments and \$1,164,728 in business building.

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## OPA CITES CINCINNATI FIRM

THE Cincinnati office of OPA filed a complaint April 24 against John W. Francis, Royal Store Distributors charging failure to submit pricing records and to compute maximum prices for refrigeration equipment.

OPA seeks an injunction for compliance and a year's accounting, with treble damages for any excess found in price charges.

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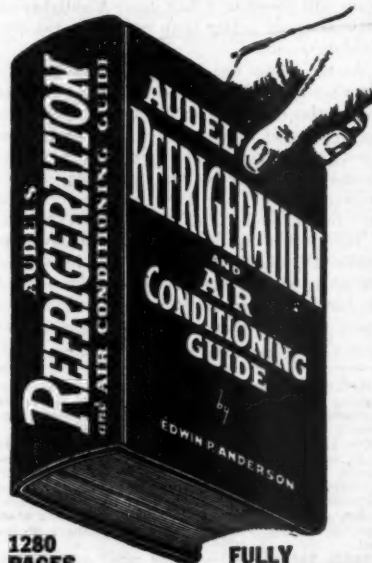
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## WESTINGHOUSE FILM SHOWS SERVICE METHODS

**T**HE problems encountered and boners pulled by a new appliance service man during his first outside service calls serve as a humorous story to illustrate how to organize service calls, handle the public and perform service calls expertly and quickly in the new Westinghouse Conservice film, "It All Adds Up," a talking motion picture in color.

One of the most ambitious training projects ever undertaken, this film includes a cost of more than 20 New York and Hollywood professionals and was produced on specially built studio sets, it was announced by L. K. Baxter, manager of the Service Department, Westinghouse Electric Appliance Division.

"While the film contains many humorous incidents, the story interest is subordinate to the main objective—the demonstration of how service calls should be made," Mr. Baxter said. "It teaches service men how to be good consumer relations employees. This is the first time we have used a motion picture for service training and we believe this medium will cover in a half hour highlights of basic training better than could several discussion sessions."

As the scenes unfold, a young service man starting to work on outside service calls is shown the ropes by an old timer. The two make calls on users and perform service on a refrigerator, range, washer, roaster, Laundromat and water heater. A commercial refrigeration call is covered as the men call on a business office and repair a water cooler.

The cast is headed by Stuart Hoover as Eddie Dixon, the young service man, and the older service man, Al Cooper, is played by Jack Harwood, a veteran of many Hollywood motion pictures. Eddie's girl friend

*(Continued on page 52)*

**IMPLICATION**—When inexperienced service man, making first home service call, implies housewife probably hasn't defrosted her refrigerator, older appliance service man steps in to make amends.

**ON SET CONFERENCE**—Caught by the still camera in an on-set conference during the filming of the new service training motion picture are (standing, left to right), J. A. Vassar, assistant manager, Service Department; J. Gilbert Baird, director of Visual Education and (holding book) L. K. Baxter, Service Manager, discussing action with three members of the cast.

**PARTS DEPARTMENT**—A good repair parts department and order system pays dividends, Al (center), the experienced service man tells Eddie, just learning how to make outside calls.

**WATER COOLER CALL**—In this scene, Eddie (right), young appliance service man making his first outside calls, has put into practice consumer approach he's learned from older service man who accompanied him on calls.

# YOU CAN...



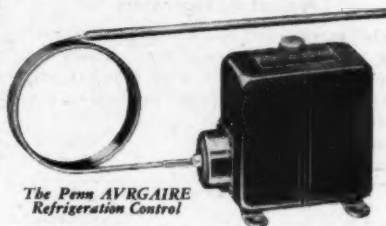
## half-way measures... with AVRGAIRE control

• In commercial "above-freezing" installations, it isn't enough to regulate *coil temperature alone* or *box temperature alone*! In either case, it's only half the job!

PENN does both with a single temperature element control . . . AVRGAIRE. This low-cost, highly-efficient control is operated by the *average temperature* of both coil and air. Thus, it maintains extremely close regulation of box temperature. It defrosts the coil on each operating cycle when box load is normal, *but* delays defrost when box is loaded with warm produce and extra cooling capacity is needed. And it maintains uniform

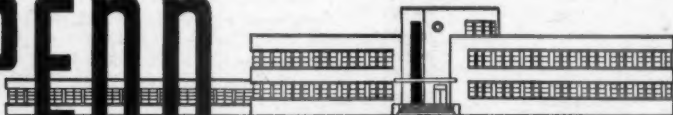
humidity to minimize dehydration and "sliming" losses.

Make sure your refrigeration controls do the "whole" job. Get full particulars on AVRGAIRE from *Penn Electric Switch Co., Goshen, Ind.* Export Division: 13 E. 40th St., New York 16, U.S.A. In Canada: Powerlite Devices, Ltd., Toronto, Ont.



*The Penn AVRGAIRE  
Refrigeration Control*

# PENN



## AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS



## IOWANS EARMARK 25 MILLION DOLLARS FOR POSTWAR REFRIGERATORS

IOWA homes offer an inviting postwar market for refrigerator manufacturers, dealers and distributors if present intentions to buy are realized.

A survey by The Iowa Poll, published by the Des Moines Sunday Register, reveals that after the war Iowans hope to invest \$25,882,150 in 177,312 electric, gas and ice refrigerators.

Other facts revealed by the poll are:

That many refrigerators have been in use for a long time. More than 50 per cent of the electric refrigerators and 75 per cent of the ice refrigerators have been in use more than six years.

That a large proportion of those intending to buy do not now own the kind of refrigerator they would like to have.

That 26 per cent of those who intend to buy electrical appliances after the war name a refrigerator as the item they need most. For city residents, the percentage is 25; for town residents, 22 per cent; for farm residents, 29 per cent.

That 62 per cent of those who intend to buy household appliances believe they would be able to pay cash for them.

That the postwar market is largest in cities and towns of over 2,500 population. The percentage of farmers who intend to buy, however, is larger than that of any other group.

### Age of Refrigerators

The survey reveals that 373,683 Iowans now own electric refrigerators. Those who own these refrigerators were asked to give the approximate age of their appliances, with this result:

Approximate age in years	Per cent of total	Number of units
2	4	14,572
4	23	89,177
6	22	81,826
8	22	81,826
10	17	63,891
15	10	37,363
20	2	5,978
Total	100%	373,683

When those who now intend to buy electric refrigerators after the war are separated on the basis of whether they now own or do not own such a unit, the following results:

Per cent of group intending to buy      Number of units

#### CITY:

Now own .....	35%	23,332
Do not own .....	65%	48,330

#### TOWN:

Now own .....	26%	8,755
Do not own .....	74%	25,180

#### FARM:

Now own .....	13%	7,828
Do not own .....	87%	50,156

\$\$\$

### PRICES FOR HOME FREEZERS

UNDER an order of OPA effective April 5, maximum net prices for farm and home freezers made by Emil Steinhurst & Sons, Inc., of Utica, N. Y., are established as follows:

Item and Size	On sales to Distributors	On sales to Dealers	On sales to Consumers
WM10, ¼-hp. condensing unit .....	\$215	\$258	\$430
WM18½, ½-hp. condensing unit .....	275	330	550
WM26, ¾-hp. condensing unit .....	350	420	700

A similar order establishes the maximum net price for sales of farm and home freezers by the American Refrigerator and Machine, Inc. of Minneapolis, Minn., as follows: 3-door, 14.54 cu. ft. capacity, with ½ hp. condensing unit, on sales to distributors, \$385; sales to dealers, \$402; sales to consumers, \$670.

Another order establishes maximum net price for sales by the Gross Co., Milwaukee, Wis., for their Model No. 1125, 11.25 cu. ft. units, with ½ hp. condensing unit, for sales to distributors, \$195; sales to dealers, \$234; and sales to consumers \$390.

The maximum net prices established by these orders are subject to discounts and allowances and the rendition of services at least as favorable as those for similar commodities during March 1942.

Additional charges may be added to the above prices covering freight not to exceed the lowest common carrier rates; and crating charges not to exceed \$6.00.

\$\$\$

Roy Slaughter and Earle R. Buck have published a certificate that they are conducting business under the firm name of Los Angeles Refrigeration Sales and Service at 1515 West Eleventh Street, Los Angeles, Calif.



*Precision*

Only precision parts go into  
the construction of  
Mills Air and Water Cooled  
Condensing Units.  
Mills Industries, Incorporated,  
4100 Fullerton Ave., Chicago 29, Ill.

## SURVEY SHOWS BANKS PLAN TO SUPPLY CONSUMER CREDIT

**PLANS** made by 7,000 banks in all sections of the country to offer or expand their services in the field of consumer credit to include purchase of time sales instalment paper from merchants will make possible the opening of new retail outlets in every community for the sale of consumer goods, according to Carl M. Flora, chairman of the Consumer Credit Committee of the American Bankers Association, who is also vice president of the First Wisconsin National Bank, Milwaukee, Wis.

One of the principal problems to be solved when the war ends will be distribution of the tremendous volume of goods and services, estimated at approximately 135 billion dollars, and supplying some 55 million jobs. "If the manufacturers do not have a market for their output, production will soon cease and unemployment will result," Mr. Flora said.

"Remember consumers, not manufacturers, create jobs. We can provide no more jobs to build automobiles, refrigerators, and radios than we can find ways to finance and distribute these goods. Consumer credit has created mass markets and has made possible mass distribution, which in turn has resulted in mass production and lowered costs leading ultimately to a higher standard of living for the American people," he continued.

"Use of bank facilities to aid families in financing purchases of such items as washing machines, ranges, refrigerators and vacuum cleaners and to provide retail dealers with adequate funds to maintain displays and stocks of these items should multiply the outlets from manufacturers of the nation to an important degree."

As a first step in putting this national program among banks into operation the Consumer Credit Committee of the A.B.A. has just published a manual entitled, "Home Appliance Financing." It was written after a study of such loan operations in banks which have been successful in the consumer credit field.

The subject matter of the manual is divided into two parts. First, "Retail Paper Purchased," explaining steps taken in transferring time sales obligations from the merchant to the bank, and second, a "Wholesale Floor Plan," whereby the bank provides financing to meet dealer's requirements for merchandise purchases, and presents illustrations of basic forms used in the various transactions.

## DEPARTMENT STORES FORM FROZEN FOOD INSTITUTE

**A** FROZEN Food Institute has been formed by some of the leading department stores for the purpose of compiling and circulating among its members information on the processing, distribution and use of frozen foods. The stores participating in the organization of the Institute include: Allied Stores Corp.; Marshall Field & Co., Chicago; J. L. Hudson Co., Detroit; and R. H. Macy & Co., New York.

This cooperative effort is being made in view of the new developments taking place in the frozen foods field and which, it is expected, will continue after the war. The principal function of the Institute will be to determine what part department stores can play in the distribution of frozen foods. Emphasis will be on the frozen food itself rather than on equipment for handling such products in the home, although this latter factor will undoubtedly come in for some consideration. The Institute will not design or manufacture frozen food cabinets, it was stated.

Gerald A. Fitzgerald, who was research director of Richardson & Robins, Dover, Del., and formerly a member of the technical staff of the General Foods Corp., became director of the Institute as of April 1.

\*\*\*

## BACK ISSUES OF R. S. E. WANTED

**R**EADERS are requesting back issues of THE REFRIGERATION SERVICE ENGINEER to complete files. If you have any of the following issues to dispose of,

July 1933	June 1938
January 1934	August 1941
November 1935	September 1941
April 1936	November 1942

mail them to Nickerson & Collins Co., 433 N. Waller Ave., Chicago 44, Ill. Fifty cents a copy will be paid for these copies or your current subscription extended two months.

\*\*\*

## A.S.R.E. CANCELS SPRING MEETING

**T**HE 32nd Spring Meeting of The American Society of Refrigerating Engineers, originally scheduled for Milwaukee June 11-13, was cancelled by action of the Society's executive committee, meeting March 15 at headquarters in New York. This cancellation was made in cooperation with the Office of Defense Transportation's current order that meetings and conventions be curtailed.

# 5 GOOD REASONS WHY

You Should Always Specify

# SPORLAN VALVES

With Selective Charges "C" and "Z"

on All Small

Commercial Refrigeration Applications!



*and Remember...*

only **SPORLAN** can give you  
this **PEAK PERFORMANCE**

*because*

- 1 Sporlan selective charges C and Z prevent flooding the evaporator at the start of the cycle.
- 2 Sporlan selective charges C and Z prevent overloading the motor at the start of the cycle.
- 3 Sporlan selective charges C and Z minimize hunting during the running cycle.
- 4 Sporlan selective charges C and Z close the valve quickly and positively when the compressor stops.
- 5 With Sporlan selective charges C and Z the control is always in the bulb, no matter how cold the valve diaphragm becomes.

**SPORLAN**



*Peak Performance*

**VALVES**

## How to Determine Which of the Two Charges to Use is Simplicity Itself

Just remember that the Sporlan C charge is always used on all jobs with suction temperatures ABOVE ZERO. The Sporlan Z charge is always used on all jobs with suction temperatures BELOW ZERO.

### SPORLAN C CHARGE

For All Small Commercial Refrigeration Applications With Suction Temperatures ABOVE ZERO

DISPLAY CASES    WALK-IN COOLERS  
REACH-IN BOXES    WATER COOLERS  
BEVERAGE COOLERS    FLORIST BOXES

### SPORLAN Z CHARGE

For All Small Commercial Refrigeration Applications With Suction Temperatures BELOW ZERO

ICE CREAM CABINETS  
FARM FREEZERS    HOME FREEZERS  
LOCKER PLANTS

Other Sporlan Selective Charges are the Type G for all Comfort Cooling Installations and the Type X for all applications below 30° F.

*Sporlan Manufactures  
Solenoid Valves • Solenoid  
Pilot Controls • Refrigerant  
Pilot Controls and the only  
Distributors and the only  
Thermostatic Expansion  
Valves with Selective  
Charges*

**SPORLAN VALVE COMPANY**

3723 COMMONWEALTH AVENUE, ST. LOUIS 17, MISSOURI

## PAUL REED APPOINTED COUNSEL TO OFFICE OF CHIEF OF ENG'RS.

PAUL B. REED, Chairman of the War-time Educational Committee of the Refrigeration Service Engineers Society, and Manager of the Refrigeration Division of the Perfex Corporation of Milwaukee, has been appointed Expert Consultant to the Office of Chief of Engineers, War Department. His work will consist in assisting the Repair and Utilities Branch in the preparation of manuscript for a repair and maintenance manual on refrigeration, ventilation and air conditioning for the use of Post Engineer personnel. His activity for the Army is part-time and temporary only, and makes no change in his regular position with Perfex.



§ § §

## REFRIGERATION HEAT LOADS

(Continued from page 26)

ating between 10 and 15 degrees t.d. in a 0 degree cabinet, it will generally be found that a  $\frac{1}{2}$  H.P. air cooled unit will be required. Remember, that the capacity of the unit decreases with a lowering of evaporator temperature. This capacity reduction is the result of reducing the suction pressure which limits the weight of refrigerant being handled by the compressor.

§ § §

## WESTINGHOUSE FILM

(Continued from page 46)

in the picture is played by a Hollywood actress, Patricia Colburn, while the balance of the cast are well known supporting players. The 16 mm. film was produced by Cinecraft Productions and directed by Ray Culley. The script was written by John De Witt of Fuller & Smith & Ross, Inc., Cleveland, O., advertising agency for the Westinghouse Electric Appliance Division.

§ § §

Benjamin R. Collins  
Yreka, Calif.

Permit me to say that through the persistent reading of R.S.E. and putting the subject matter to work, I have consistently climbed to higher salary ranges and have the satisfaction of knowing that "I do it right."

## DEFICIT IN COPPER PRODUCTION

SHARPLY reduced estimates of copper production for 1945, prepared by the Copper Division of the War Production Board, indicate that instead of a surplus over essential requirements there will be a deficit for the year of about 208,000 tons.

Increasing shortages of workers in mines, mills, smelters, and refineries, plus the lag in copper imports from Africa, are listed as chief causes of the predicted shortage.

Original WPB estimates of high 1945 copper production had been based on adding 4,000 workers to the copper industry. Instead the industry now expects to lose about 1,800 of the 3,200 men in the 26-29 group to the armed forces. Replacements for these are thought unlikely.

Secondary production of copper is expected to fall, based on experience in the first and second months this year, said WPB officials. Early in March it was thought that there would be a surplus of 89,000 tons of refined copper in the first quarter, but in January there was a deficit of 84,900 tons.

§ § §

## MERGER OF TWO REFRIGERATOR FIRMS PROPOSED

A PROPOSAL to merge Sunbeam Electric Manufacturing Co. of Evansville, Ind., with Seeger Refrigerator Co. of St. Paul, Minn., has been announced by William A. Carson, Sunbeam president.

Sunbeam stockholders were asked to approve the merger at a meeting April 16. The proposed contract would transfer all assets to Seeger in exchange for Seeger common stock. The Sunbeam plant, now engaged solely in war production, manufactured refrigerators and refrigerator cabinets for Sears, Roebuck & Co. before the war. It also made other electrical appliances.

The new company would be known as the Seeger-Sunbeam Corporation. Carson said he would remain as a director.

§ § §

## A.S.R.E. HEADQUARTERS MOVED

NATIONAL headquarters offices of The American Society of Refrigeration Engineers, for the past three years located at 50 West 40th Street in New York, were moved on April 15 next door to 40 West 40th Street, New York 18. New furnishings have been acquired for the attractive new suite, which occupies the 12th floor of the American Radiator Company's skyscraper.



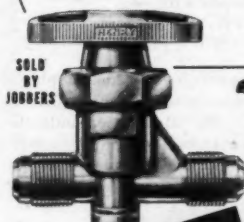
*Only* Henry makes a Diaphragm Packless Valve that is

**NON-DIRECTIONAL**

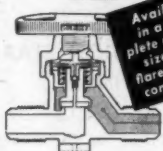
By means of a patented balancing channel in the lower valve stem, explained in detail below, the Henry Diaphragm Packless Valve cannot stick shut regardless of the pressure differential above or below the valve seat. When using a conventional valve, there is always the possibility that a valve installed in reversed position could fail to open if sufficiently high pressures should develop above the seat. The Henry Diaphragm Packless Valve, however, can be relied upon to give positive performance under all conditions of service because it is truly non-directional.

You will also like the Henry feature of having inlet and outlet ports in line on two way and three way valves. This eliminates tube bending and results in neater lines and lower installation costs.

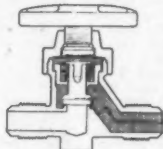
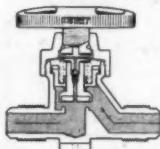
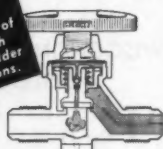
During the war Henry Diaphragm Packless Valves have been widely favored by all branches of the armed services. It is only natural that, as our country gradually turns to the problems of Peace, this Henry Product again will be the logical choice of manufacturers, jobbers, contractors and service organizations everywhere.



## *The Difference* Between a Henry Non-Directional Balanced-Action Diaphragm Packless Valve and a Conventional Packless Valve



Available in a complete range of sizes with flare or solder connections.



**BALANCED-ACTION VALVE IN CLOSED POSITION**—High pressure above the seat, low pressure below the seat. High pressure regions are shown in color. Pressure in spring cage below diaphragm is the same as that in main passage of valve body above the seat. This is due to seepage between the lower stem and the guide. Downward pressure of the bearing plate on the diaphragms seals the upper port of the balancing channel.

**OPENING THE BALANCED-ACTION VALVE**—As hand wheel is turned to open valve the diaphragms, because of pressure beneath them and their own snap action, rise and expose the upper port of the balancing channel. The high pressure, shown in color, unseals ball check and is instantly released through the open channel to the low pressure region below the valve seat, thus achieving "balanced-action" by equalizing pressures.

**BALANCED-ACTION VALVE IN FULL OPEN POSITION**—Equalization or balancing of pressures above and below the seat, as shown in color, guarantees that this valve can never "stick shut" but will always open positively, regardless of original differential in pressures. When there is high pressure below the seat and low pressure above, the balanced valve opens easier than other types because of the light weight spring.

**CONVENTIONAL TYPE WITHOUT BALANCED-ACTION**—As hand wheel is turned to open valve the diaphragms rise. When the differential between high pressure, shown in color, above seat and low pressure below seat is greater than force exerted by heavy spring, stem "sticks shut"—valve remaining closed. The heavy spring required in this type of valve greatly increases diaphragm wear and strain and causes stiff closing.



**HENRY VALVE COMPANY**  
3260 WEST GRAND AVENUE, CHICAGO 51, ILLINOIS  
EXPORT DEPARTMENT, 13 EAST 40TH STREET, NEW YORK 16, N.Y. • CABLE: ARLAB

PACKLESS AND PACKED VALVES • STRAINERS • DRYERS FOR REFRIGERATION AND AIR CONDITIONING  
AMMONIA VALVES • FORGED STEEL VALVES AND FITTINGS FOR OIL, STEAM AND OTHER FLUIDS

# Refrigeration Service Engineers Society

Official Announcements of the activities of the International Society and Local Chapters appear in this department as well as articles pertaining to the educational work of the Society.



## THE OBJECTS OF THE SOCIETY

To further the education and elevation of its members in the art and science of refrigeration engineering; for the reading and discussion of appropriate papers and lectures; the preparation and distribution among the membership of useful and practical information concerning the design, construction, operation and servicing of refrigerating machinery.

INTERNATIONAL HEADQUARTERS: 433-435 North Waller Ave., CHICAGO 44, ILL.

## CLEVELAND CHAPTER HAS ACTIVE PUBLICITY COMMITTEE

**M**EMBERS of Cleveland Chapter are reminded regularly of coming Chapter meetings and what they may miss if they are absent. Walter E. Wright is the "live" chairman of the publicity committee and an example of one of his "reminder" letters is as follows:

Dear Member:

Yes I know every one is busy and has more than they can do—but don't let it get you down—just say to yourself—well I know I can take one night a month off and enjoy it, and at the same time meet the boys and keep in touch with the business at large and maybe learn something, that might improve my ability to give my customer a little better service, and perhaps I can help a brother member improve his methods.

After all isn't that what this society is for? Why not get all you can out of it? The speaker we are going to have next Tuesday can answer any question that you ask him about refrigeration, and what he is going to talk about, I know will interest every one in the business.

R. Dawson of the Alco Valve Company is a past master at the art of refrigerants distribution and will talk to us on the subject of multi-outlet valves and feeds to improve the efficiency of low side cooling surfaces. He just loves to answer questions so bring a lot of them with you.

The meeting will be held at The Eagles Hall, 3145 West 25th St. The day: Tuesday,

April 10th, 1945. The time to be there: 8:30 P. M.

This will be your only notice of this meeting, bring your friends with you.

Very truly yours,

Walter E. Wright, Publicity Chairman

Another feature adopted by the Chapter is an accurate attendance card record of members and guests. The illustration indicates the simplicity of maintaining the attendance record. Two cards, one for members and the other for guests, are printed on different colored stock.

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## WISCONSIN ASSOCIATION STARTS DISTRICT MEETINGS

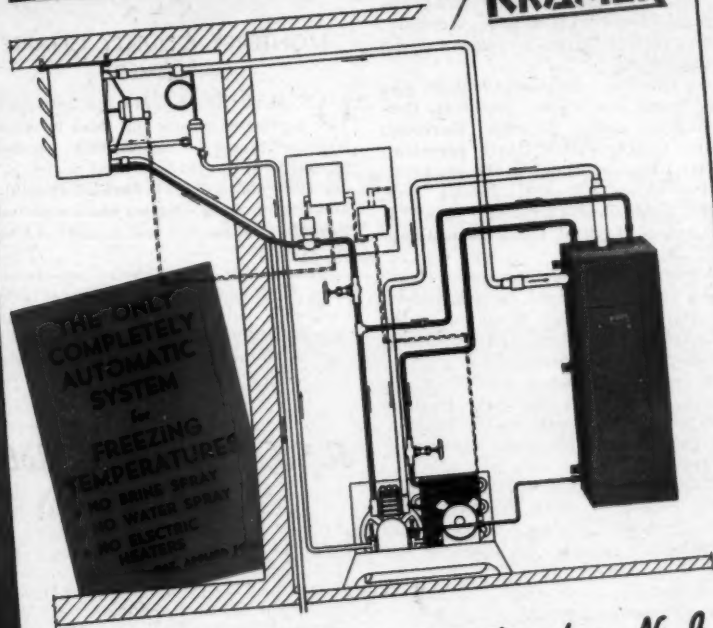
**M**EETINGS are getting under way in the 14 districts set up by the Charter of the Wisconsin State Association of the Refrigeration Service Engineers Society. Reports indicate meetings have been held in District 6 at Eau Claire, District 13 at Madison, and District 14 at Milwaukee. The other districts are expected to report within the next few weeks; then the directors of each district will meet to formulate plans and arrange for additional meetings and other activities.

To Lee Miles and A. L. Robertson, temporary chairman and Secretary, go much of the credit in getting the Wisconsin State Association organized. They have also been devoting as much time as possible to aid in getting the district meetings called. Men who are interested in becoming members are requested to contact Mr. A. L. Robertson, 731 University Ave., Madison, Wisconsin. He will be glad to explain in detail the Association's work and purpose and tell about what it has accomplished.

GUEST	
Refrigeration Service Engineers Society	
<input type="checkbox"/>	JULY
<input type="checkbox"/>	AUGUST
<input type="checkbox"/>	SEPTEMBER
<input type="checkbox"/>	OCTOBER
<input type="checkbox"/>	NOVEMBER
<input type="checkbox"/>	DECEMBER
303030	
<input type="checkbox"/>	JANUARY
<input type="checkbox"/>	FEBRUARY
<input type="checkbox"/>	MARCH
<input type="checkbox"/>	APRIL
<input type="checkbox"/>	MAY
<input type="checkbox"/>	JUNE
ATTENDANCE 1945 - 1946	

# THERMOBANK

by **KRAMER**



**KRAMER-TRENTON CO. Trenton, N. J.**

*Write for  
Bulletin TV-345 RS2*

## OFFICERS OF NEW ENGLAND CHAPTERS MEET

THE preliminary meeting of the recently proposed New England Chapter of the R.S.E.S. to supersede the Massachusetts State Chapter, dissolved at the annual convention took place at the Publick House at Sturbridge, Mass., April 24, 1945.

Harold Lambert had arranged for a fine chicken dinner which was particularly enjoyed in these days of shortages, after which the assembled officers and guests adjourned to the business session.

Temporary officers as follows attended: President Harold Lambert of Springfield; Vice President William E. Tierney of Worcester; A. W. Andreen, second vice-president, of Hartford; R. R. Seddon, secretary, of Boston; George Martin, sergeant-at-arms, of Providence.

Officers from New England Chapters who attended were: Les Pierce, president, Boston Chapter; John Brosnan, secretary, Worcester Chapter; Bob Davis, president, Worcester Chapter; Howard Hough, president, Providence Chapter; Jimmie Vye, president, Springfield Chapter; Frank Tarala, secretary, Central Connecticut Chapter.

As the Waterbury and New Haven Chapters were not represented, it was agreed that specific action on the formation of the new chapter be postponed until May 22, at 6:30 p.m., Sturbridge, Mass.

There was a general discussion of the aims and purposes of the New England Chapter which was brought up by Mr. Martin of Providence after which it was resolved that—

The activities of the New England Chapter shall consist of furthering the educational and social purposes of the Society and holding an annual convention for this purpose.

The annual dues shall remain at \$10 per annum per member chapter.

The officers shall be elected annually at the convention and that the presidents of the member chapters shall serve as the Board of Directors of the New England Chapter.

The secretary shall invite all eligible Chapters (those located in New England) to participate and to send the president or his delegate to assist in the formation of the New England Chapter, with authority to act for his Chapter, at a meeting to be held at the Publick House, Sturbridge, Mass., on Tuesday, May 22, at 6:30 p.m.

## SACRAMENTO VALLEY CHAPTER FORMED

FEELING the need of organization to establish fair practices among service engineers in and around Sacramento, California, a group of 17 men engaged in refrigeration work met to organize the Sacramento Valley Chapter. The first meeting was held on March 3 to petition the International Society for a Charter. These men became an active Chapter on April 3, 1945 when the Charter was granted.

The members have been fortunate in having Gerald S. Kennedy among them to give his assistance from the inception of the Chapter.

§ § §

## MONTEREY COUNTY CHAPTER FORMED

ON MARCH 14, 1945 ten refrigeration service engineers and three members at large petitioned for a Charter to become affiliated with the International Society. Under the guidance of Robert McDonald, the Monterey County Chapter has completed the formative stages and was granted a Charter on April 2.

Members of this Chapter are from the large area embraced by Monterey County, California but all are deeply interested in showing their willingness to cooperate with each other for the betterment of refrigeration service in their area.

§ § §

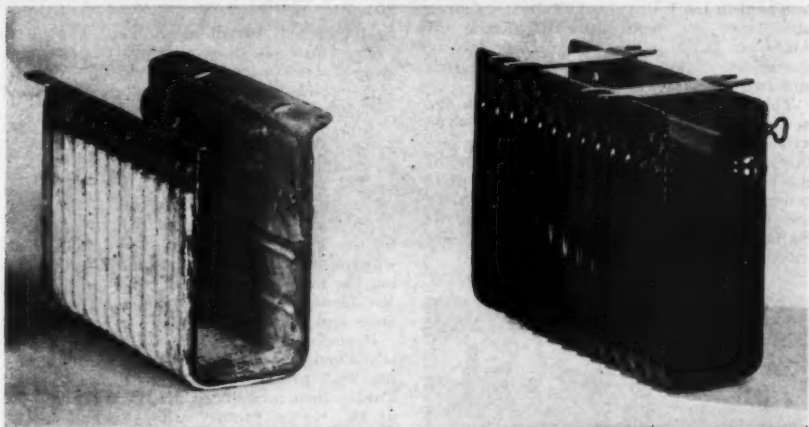
## R.S.E.S. Chapter Notes

### ILLINOIS VALLEY CHAPTER

Peoria, Ill., March 9.—In the absence of President Loercher, Vice-President Harry Hauser conducted a short business session; then turned the meeting over to Dwight D. Orr, of the Herman Goldberg Co. Mr. Orr discussed the application of Chicago seals and Chicago valve plates for replacement purposes. The discussion proved of interest to all.

April 13.—A short business meeting was conducted in which it was decided to hold a picnic on May 20 at Pekin, Ill. Two guests, J. J. Kline, Springfield and R. M. (Dick) Potter, United States Electric Co. of Springfield, were welcomed. The educational program was conducted by Mr. Meade of Servel, Inc., who showed slides and discussed the new hermetic units designed by Servel. He also went into some detail on figuring and the installation of locker plants.

# Used Evaporators—REPORCELAINED



**BEFORE**

**AFTER**

## PORCELAIN EVAPORATORS REFINISHED LIKE NEW

Kelvinator, Gibson and All Others; Leaks Welded, Reporcelained in Blue. We have on hand certain models of evaporators to exchange—no waiting. Send in your old evaporator.

NOTICE—Remove all fittings and no evaporator will be accepted with any welds. Add one dollar for cleaning and flushing out old oil.

EXCHANGE  
PRICE

**\$12.50**

## USED DRY EXPANSION ALUMINUM EVAPORATORS



6½" wide, 9" high, 12" deep. Bolt hole centers: 4" across front and 7½" front to back. Capacity: 4½ to 5 cubic feet.

**\$11.75**

9¾" wide, 9" high, 12" deep. Bolt hole centers: 4" across front and 7½" front to back. Capacity: 5½ to 6 cubic feet.

**\$14.00**

15" wide, 9" high, 12" deep. Bolt hole centers: 4" across front and 7½" front to back. Capacity: 6½ to 7 cubic feet.

**\$16.00**

All prices F.O.B. Chicago, Ill.

## ACME REFRIGERATION PARTS CO.

5217 W. Madison St.

Telephone  
Columbus 4141

Chicago 44, Ill.

SERVICE ENGINEER

57

May, 1945



## NIAGARA FRONTIER CHAPTER

**Buffalo, N. Y., March 18.**—The meeting was held in the Lafayette Hotel with a large attendance to hear Edward Kellie of American Injector Co., Detroit, who gave a special educational talk on oil separators and two-temperature valves.

This meeting was the first in which the new door prize plan was in effect. The winner, as shown in the accompanying picture, was Howard Hornung. Winner of the prize is for early attendance, one prize being given at each meeting. The prizes are donated by refrigeration jobbers in the Buffalo area and are of value to any service man.



1. Ralph Davis (left) welcomes Ed. Kellie back to Buffalo as an old friend of the Niagara Frontier Chapter.

2. John Bush, Ed. Kellie, Joey Kern, and Chester Schintzius discussing some of the earlier days of the R.S.E.S.

3. Howard Hornung (left) being presented the door prize by Lewis Schanke of Nash-Kelvinator Corp.

4. Officers for the year, reading left to right (standing): Lewis Schanke, corresponding secretary; John Muller, chairman of the directors; William Goeckel, vice-president; Matty Wroblewski, recording secretary—(seated); Chester Schintzius, treasurer; Edw. Orsolits, sergeant-at-arms; Ralph Davis, president; Joey Kern, member of board of directors.

**April 13.**—The educational feature of this meeting was L. Schnaeke, local representative of Nash-Kelvinator Corp. Mr. Schnaeke discussed the domestic type of refrigerator to the benefit of all attending. The door prize, a tool box, was won by Walter Bobzien of Lockport, N. Y. Mr. Bobzien expressed his appreciation and said he was certainly glad he attended the meeting.

Announcement of the annual banquet, to be held at the Stuyvesant Hotel on April 28, was made.

## BOSTON CHAPTER

**Boston, Mass., March 13.**—In the absence of the President, first Vice-President Edward Hoyt, opened the meeting. After reading the minutes and having them corrected, President L. W. Pierce made his appearance and assumed his duties.

Francis Moore, C.P.A. of Boston University Evening College, spoke on cost accounting and profit. Following this talk, Mr. Pantin then introduced Mr. C. A. Homeyer of the Ranco factory who gave an interesting talk on temperature controls.

Following the discussions, 13 members were admitted to the Chapter. A count showed 45 members present.

**April 10.**—President L. W. Pierce called the meeting to order at 8:00 P.M. William Paulin, Chairman of the Educational Committee, introduced C. R. Logan of the Superior Valve and Fittings Co. His talk on valves and fittings was very interesting and instructive. His exhibition of old fittings and flare nuts brought back memories of servicing in times past.

The other speaker of the evening, Prof. A. L. Hesselschwerdt, of Massachusetts Institute of Technology, lectured on design and use of the Calorimeter.

Due to the lateness of the hour, all further business was deferred to the May meeting. The meeting closed at 11:00 P.M. with 65 members present.

## LOS ANGELES CHAPTER

**Los Angeles, April 25.**—At a meeting of Los Angeles Chapter, Sterling Smith, manager, Refrigeration Division, Mills Industries, Chicago, and formerly of the War Production Board, gave an interesting talk on the various Government orders now effective, including the recent changes on P-126.

He pointed out the opportunities that will follow for the postwar period for the Pacific Coast when the demands for refrigeration equipment from New Zealand, Australia, Eastern Asia, and other islands, are made in this country. He further stated that the Western Coast has a large responsibility in supplying the facilities that will be required to continue our war against the Japs.

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 Exactly what the name implies—handy little swivel connectors for "quick-coupling" charging lines, gauge lines, vacuum lines, pressure lines, etc. to refrigeration cylinder valves, gauge sets, compressor service valves, evaporators, condensers and other equipment, *without the use of a wrench.*  
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### READING CHAPTER

*Reading, Pa., March 20.*—Meeting was called to order by President Mathias in the Veterans of Foreign Wars Hall. After the Secretary's report and reports of other committees, Mr. Larson introduced Harold Baisch, Chapter Treasurer, who discussed the unit troubles and remedies of Norge domestic refrigerators.

*April 3.*—Twenty-five members gathered to hear Jack Strouse of Detroit Lubricator Co. talk on thermostatic expansion valves. Discussions on current problems involving valves were entered into by the members. Mr. Strouse quite ably answered the questions propounded by the members and guests.

### TWIN CITIES CHAPTER

*Saint Paul, Minn., April 3.*—After opening the meeting, six new members were accepted and one was rejected until such time as he established himself in refrigeration. The treasurer's report showed a substantial balance in the Chapter treasury. Action was taken to mimeograph copies of the Chapter's constitution and By-Laws to be given to each member.

Paul Brahmer then gave a very interesting talk on the Sterilamp.

### MILWAUKEE CHAPTER

*Milwaukee, Wis., April 3.*—The meeting was called to order by acting President F. R. Wierman, who then announced the meeting would be devoted to election of permanent officers. The following officers were elected: Mr. Felix R. Wierman, *President*; Mr. G. D. Wang, *First Vice-President*; Mr. H. Beck, *Second Vice-President*; Mr. G. F. Schumacher, *Secretary*; Mr. W. Stillmer, *Treasurer*; Mr. L. E. Slawner, *Sergeant-at-arms*.

Following the election, Paul B. Reed announced that district 14 of the Wisconsin State Association would hold its meeting on April 12. Mr. Wang, member of the Service Improvements Advisory Committee, discussed the activities of this committee.

*May 2.*—Fifty-six members and guests including the ladies assembled at the Knickerbocker Hotel for a dinner and charter presentation meeting. Immediately following the dinner, Mr. Wierman introduced officers and members of Chicago Chapter and officers and members of Madison Chapter, who were in attendance. Following some preliminary remarks, he then requested Paul Reed to introduce Dr. Walter O. Walker of Ansul Chemical Co. who presented slides and discussed the Wax Separation in Oils. Dr. Walker's talk proved to be of interest to the ladies as well as men; being presented in his usual fine manner.

Mr. Wierman then introduced Clarence Buschkopf, acting International President, who presented the charter to the Chapter. At the close of the meeting, many small groups formed for pleasant conversations of mutual interest.

### MAGNOLIA STATE CHAPTER

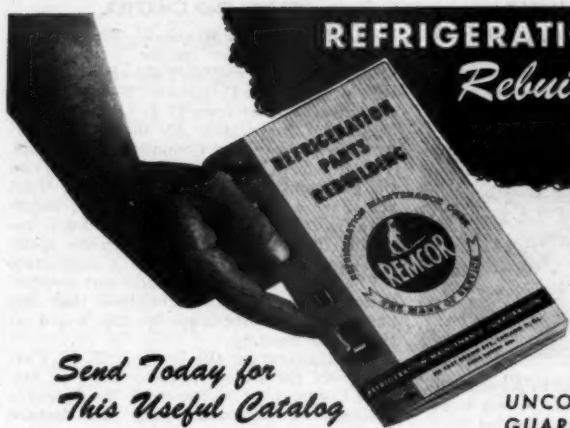
*Jackson, Miss., March 14.*—The meeting was held at the offices of Pollard Appliance Co., 118 S. Lamar Street. A report from Joe Pollard was made to the effect that the Chapter would hold its banquet on March 28.

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Recognizing the value of advertising, the Chapter discussed ways and means of presenting their advertising campaign. Announcements of meetings are to be forwarded to the local papers and an advertisement in the "News & Views" section of the Clarion Ledger was authorized to start in April and continue for six months. Members subscribing to the program made or will make voluntary pledges of sufficient amounts to assure continuation.



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## KANSAS CITY CHAPTER

*Kansas City, Mo., April 4.*—After the meeting was called to order by President M. L. Ferguson at the Hotel Bellerive, regular business was conducted and one application was acted on and accepted. Earl G.



Tenth annual dinner-dance held by Kansas City Chapter at the Brookside Hotel. A very enjoyable occasion for all who attended

Morgan, member of A.S.R.E., gave an interesting talk on the history of refrigerating units. Later, Mr. Visger conducted a forum on Service Improvements which opened discussion for many of the members.

## TOLEDO CHAPTER

*Toledo, Ohio, April 11.*—In the absence of the President, John Murphy, vice-president conducted the meeting which was attended by 21 members.

The prompt attendance prize was won by Vern Salsbury. Following the presentation of the prize, Mr. Walbridge of Minneapolis-Honeywell Regulator Co. showed some of the company's products and presented moving pictures pertaining to electronics of the automatic pilot used on the larger airplanes of the armed forces.

## TRI-STATE CHAPTER

*Huntington, W. Va., March 20.*—The annual banquet was held in the Crystal Room of the Frederick Hotel with 30 members and guests present. Toastmaster for the occasion was Roy McElhaney of The Mechanics Refrigeration Supply Co., who called on several present for remarks. Installation of officers was then held; the installation being very ably performed by past International President, Claude A. Brunton.

## CORN BELT CHAPTER

*Bloomington, Ill., April 20.*—After the meeting was called to order, Glenn F. Zellhoefer, engineer of Williams Oil-O-Matic Heating Corp., discussed the principles of the absorption unit used in Air-O-Matic air conditioning installations.

## CLEVELAND CHAPTER

*Cleveland, Ohio, March 7.*—The meeting was called to order by the President at 8:50 P.M. The roll call showed 40 members present and 11 guests. The Secretary then read a letter from C. L. Olin of Servel asking for suggestions for the Service Improvements Advisory Committee of R.S.E.S. The President called for suggestions from the floor and many were forthcoming. Warren Farr is composing an answer, incorporating the suggestions. Mr. Farr reported there was no report from the Membership Committee and made a suggestion for a combination attendance and identification card. It was determined that this suggestion be taken up by the board at their next meeting.

The speaker for the evening, F. Y. Carter, from the Research Laboratory of Detroit Lubricator Co., then took the floor. He presented a very interesting slide lecture on low temperature expansion valves and a general history of the development of the expansion valve.

## CHICAGO CHAPTER

*Chicago, Ill., Mar. 13.*—Over 125 members of Chicago and surrounding Chapters and guests assembled to enjoy a very enlightening talk presented by Dr. Walter O. Walker, Director of Research, Ansul Chemical Co., Marinette, Wis. His subject was "Wax Separation in Oils" which proved to be of vital interest to the entire group. Pointing out the proper method in determining wax separation with the oil in contact with the refrigerant, Dr. Walker then showed the fallacy of the method used by the refiners in determining the wax separation point.

Concluding his talk with the subject of proper filling of service drums, Dr. Walker then answered many questions on these two subjects. The meeting adjourned and refreshments were enjoyed by all through the courtesy of the Herman Goldberg Co.

*April 10.*—The meeting was called to order by President Lilley who, after conducting the regular business, requested the secretary to read some twenty new applications. These were referred to the Membership Committee for final approval. D. D. Orr, Educational Chairman, then introduced Richard Kenney, Zone Service Representative, Nash-Kelvinator Corp., who showed slide films on the late domestic Kelvinators.

## WOLVERINE CHAPTER

*Lansing, Mich., March 12.*—This meeting was devoted to the showing of pictures by Gunther Joseph on the manufacturing of aluminum. In conclusion, a picture "The Battle of Britain" was shown.



### MISSISSIPPI VALLEY CHAPTER

*Davenport, Iowa, April 2.*—The meeting was called to order by President E. J. Ford. Progress on plans for the State Association were discussed and it was decided to invite all members in Iowa to attend a meeting to be held on May 8. All who are interested are expected to attend the meeting.

Four new applications for membership were accepted. Plans for the educational program were made for the next three meetings. Following the business, Mr. Ford led the discussion on engineering a complete job including figuring heat load and specifying equipment.

### CENTRAL CONNECTICUT CHAPTER

*Hartford, Conn., Feb. 28.*—The fourth annual banquet was held with 49 members and guests present. Retiring President, Arthur W. Andreen, reviewed the activities of the Chapter during the past year. A plaque, sponsored by the Chapter, bearing the names of members serving with the armed forces was unveiled.

Following the dinner, Charles Logan, past President of A.S.R.E., delivered a very impressive talk on organization within the refrigeration industry. He pointed out the responsibility of each member in any organization to make such associations suc-

cessful. Many interesting facts pertaining to the refrigeration industry were presented.

*March 26.*—The meeting was called to order at 8:30 P.M. by John W. Barrett with an attendance of 81 members. Four applications were given to the Membership Committee for approval. A report by A. W. Andreen, Chairman of the State Licensing Committee was given and urged all members to register at the State Capitol on Wednesday, March 28th at 1:00 P.M., scheduled time for a hearing of the proposed bill.

Joseph Simons, Educational Chairman, introduced A. C. Homeyer of Ranco Controls, who gave a very interesting and illustrative discourse on temperature and pressure controls of the past and present, followed by answering of questions of members.

### WYOMING VALLEY CHAPTER

*Wilkes-Barre, Pa., April 9.*—At this meeting one new member was accepted. The discussion then centered around standardization of part numbers for many refrigeration parts such as belts and fittings. It was suggested that standard numbers be given for all belts and fittings by all manufacturers. Mr. Straus then gave an interesting talk on expansion valves.

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1 gallon can	16.00	6 cans	

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### ELM CITY CHAPTER

*New Haven, Conn., March 1.*—At this meeting, it was agreed to postpone the banquet for ladies night to some time in the future. All members present voted an appropriation of \$10.00 as dues to join the newly formed New England Chapter. The corresponding secretary was informed to notify all members of the nominations for officers at the next meeting. The meeting was concluded by William Johnson's story on the intricate workings of the Barber Coleman controls for conditioned air.

### MOUNT ROYAL CHAPTER

*Montreal, Quebec, April 11.*—The meeting opened with reports pertaining to the convention and supper dance which were very successful. A vote of thanks was given to Mr. Gendron for his efforts in producing such results in organizing the supper dance. A letter congratulating the members for the splendid work they had done at the convention was received from Mr. McDermott.

The highlight of the evening was a talk on "Locker Cabinets" and "Frozen Foods" by Harry Parrish.

### SCRANTON CHAPTER

*Scranton, Penn., April 11.*—At this meeting the list of Standards for Water Coolers from Mr. Fairchild, U. S. Department of Commerce, was discussed. Going over the Standards in detail, the members present approved the list and returned it as requested by Mr. Fairchild. Two new members were accepted and a discussion was conducted on the qualifications of several junior members desiring active status.

### YOUNGSTOWN CHAPTER

*Youngstown, Ohio, April 26.*—A full and pleasant evening was arranged for starting with a fish dinner. Going into the forum type of discussion many topics of interest and importance were discussed. Such questions as: What does the future hold for the service engineer?, Who is going to cash in on the customers whose equipment you are now servicing?, and many others were ably answered by Warren W. Farr and Glen B. Keller of Cleveland.

### PHILADELPHIA CHAPTER

*Philadelphia, Penn., April 12.*—The members met at the Benjamin Franklin Hotel and discussed the suggestion offered by Ralph Custer, Educational Chairman, that the Chapter conduct an educational refrigeration course similar to the one the York Corporation is using for training new employees. Plans are being made to obtain text material of a suitable nature for the course.

A. Goddard of Sunrock Refrigeration Co. ably described his company's line of water coolers and arranged to have literature available to members.

### MILE HIGH CHAPTER

*Denver, Colo., April 9.*—Meeting was called to order by Charles Land, President, in the office of the Western Appliance Co., distributors of Kelvinator products. The meeting place had been arranged for by George Thompson of the company.

A roll call of the members showed that there were 27 present with four visitors. After the reading of the minutes of the previous meeting, and the treasurer's report, the president asked Mr. Haggard to report on what had been done toward advertising in the classified section of the phone book. He reported that the plan had worked out well and that the next edition of the directory would carry the names of the R.S.E.S. members located in Denver, and suburban area who wanted to be listed as doing service work. Their names would be listed under the R.S.E.S. emblem, and several of the members would also carry the emblem with their ad. All charges for this ad would be paid for by the members participating.

As no other business came before the meeting, Mr. Land introduced Geo. Thompson, who had invited our special guests for the evening, Mr. Long and Mr. Crawford from the price department of the Denver War Price & Rationing Board. Mr. Thompson introduced these gentlemen and turned the floor over to them. Mr. Long discussed in detail the various price regulations affecting the industry, and told how best we could comply with these regulations. At the end of his discussion he asked for questions from the floor, and as several were asked, and answered by Mr. Long, everyone present gained much valuable information as to how to comply with the different rules. He also went into detail with several members, explaining how they could file an application to get their prices for service raised.

After the meeting adjourned, everyone present enjoyed some very bountiful refreshments prepared and served by Dick Houghton of Kelvinator.

### MOTOR CITY CHAPTER

*Flint, Mich., April 10.*—The meeting was opened by President Dobbs who then requested the Secretary to read a letter from a former member, Fireman 1/c Lester Gettler, who is doing refrigeration repair work in the Navy. He is located in the Pacific Theatre.

The education program was conducted by Frank Wolbridge of Minneapolis-Honey-

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SERVICE ENGINEER

63

May, 1945

well Regulator Co., who gave an interesting discussion on his company's controls and their applications, after which he presented three films of technicolor cartoons which were used by the A.A.F. for technical training. These films covered "Basic Electricity," "Basic Electronics and the Vacuum Tube" and the "Basic Study of the C 1 Automatic Pilot" which guides our great bombers. These films were enjoyed tremendously by the members.

#### ONTARIO MAPLE LEAF CHAPTER

*Toronto, Ontario, March 25.*—The meeting was opened by President Wm. Sneath, who announced that the Chapter would then hear the proposed slate of officers as recommended by the Nominating Committee. The new officers elected are: Harold L. Donnell, *President*; John W. McKee, *First Vice-President*; Clare W. Moore, *Second Vice-President*; Robert G. Henderson, *Secretary*; Gordon A. Burns, *Treasurer*; C. J. Smith, *Sergeant-at-arms*.

Four new active members were voted on and accepted. William Marshall then reported on the recent Montreal Conference. Following the report, Gordon Condle, educational Chairman, conducted a very lively discussion centered around the questions and answers given at the Montreal Conference.

#### SAN DIEGO CHAPTER

*San Diego, Calif., April 12.*—The meeting was held at the Anderson Building and was well attended. Applications of four prospective members were voted upon, and three more were read and turned over to the membership committee for investigation and report at the next meeting. A letter and specifications for the manufacture of water coolers from the Bureau of Standards was read and turned over to the Secretary.

J. I. Bailey, one of our members, who is an expert on Safety First, gave an interesting talk on the treatment of burns, bruises and shock. Another member, K. Young, gave a talk on compressors and answered questions. He was followed by Willis Stafford, formerly with the Chicago Seal Co., who discussed seals and valve plates and answered questions.

### Ladies Auxiliary

#### NIAGARA FRONTIER AUXILIARY

*Buffalo, N. Y., Mar. 16.*—The regular meeting was held at the home of Mrs. Wm. Goeckel, with all officers present. Mrs. Elsom of Medina, N. Y., was our guest at this meeting.

The first drawing of the Blanket Club was held. Mrs. Lawless of 58 Royal Ave., Buffalo, N. Y., was the lucky person. Plans for the annual Auxiliary dinner party, which is to be held in May, were discussed.

#### ROCKFORD AUXILIARY

*Rockford, Ill., April 10.*—The members and their husbands entertained for Mrs. Ray Kruse, retiring President for this year, and Mrs. Roy Shipman, our Past President, at the home of Mr. and Mrs. Arthur Overman. Gifts were distributed to the retiring presidents, after which cards were played and a buffet supper was served.

At the previous meeting, a motion was made to contribute to the American Red Cross, and also to purchase additional \$1.00 war stamps for the Auxiliary.

#### KANSAS AUXILIARY

*Kansas City, Mo., April 4.*—Meeting was called to order by Louise Huston at Hotel Bellerive, at 214 E. Armour. Mrs. Sullivan's application for membership was accepted and she was welcomed into the Auxiliary. Travel Fun Quiz was played with prizes going to Mrs. Visger, Mrs. Meeker, and Mrs. Record. Mrs. Anderson volunteered to bring something for the raffle at the May meeting, after which refreshments were served.

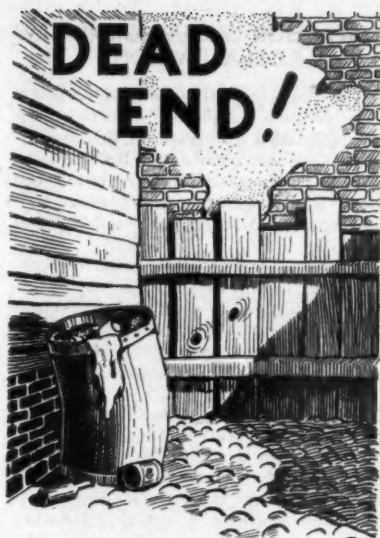
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#### DIRECTOR OVERCOME BY FUMES

NOW well on the road to recovery, J. L. Driskell, Burley, Idaho, member of the International Board of Directors, R.S.E.S., was overcome by exhaust gas fumes while riding a passenger bus recently. He was answering a service call and after the accident, was placed in an oxygen tent for a period of fourteen hours.

#### FREON RESTRICTIONS OFF—CYLINDERS STILL CRITICAL

**P**ROTECT yourself against future F-12 and F-22 shortages. In view of the restrictions being lifted on these refrigerants, it is of paramount importance that you return the empty cylinder without delay. Railroads, trucking firms and Railway Express are usually glad to cooperate in expediting the return of cylinders when informed that the item being shipped is of a critical nature. Available quantities of these refrigerants now only depend on empty cylinders being returned.



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## FRISCO JOBBERS MEET

**T**HE April meeting of San Francisco Refrigerator Jobbers was held at Maison-Paul's, San Francisco's well-known cafe. Guest speaker was Sterling Smith, sales manager for Mills Industries, Inc., Chicago, and formerly of the War Production Board, Washington. Mr. Smith gave a talk on the recent changes of order P-126. In the evening he was guest speaker at the regular monthly meeting of the San Francisco Section, American Society of Refrigerating Engineers at the Engineers Club, where he presented a further discussion on the highlights of WPB controls for the refrigeration industry generally.

Other guests included: Harold Stern, Pacific Coast director of the National Refrigeration Supply Jobbers Association and president of Refrigerative Supply Co. of Seattle, Wash., with branch stores at Spokane, Wash., Portland, Oregon, and Vancouver, B. C., and Lawrence Roth of Los Angeles, Calif., president of Refrigeration Service.

Reproduced below is a group picture of some of those present, taken by Lawrence Roth of Los Angeles.

## COMPRESSOR GROUP FORMS NEW R.E.M.A. DIVISION

**A**T a recent meeting of the Standard Refrigeration Compressor Association, the group disbanded. Members of this association who are also members of Refrigeration Equipment Manufacturers Association formed a Refrigeration Condensing Unit Manufacturers Association as a division of R.E.M.A.

This new association has plans for conducting an engineering activity export activity, offering assistance to the government in war effort and disposal of surplus stocks. They also plan a sales program in cooperation with jobbers and refrigeration service engineers.

The present association includes: Brunner Mfg. Co.; Refrigeration Division of Curtis Mfg. Co., Lynch Mfg. Corp., Mills Industries, Inc., Servel, Inc., Tecumseh Products Co. and Williams Oil-O-Matic Heating Corp.

New officers are: B. J. Scholl of Brunner, Chairman; Sterling F. Smith of Mills, Vice Chairman; H. C. Morrison of Curtis, Treasurer. Other members of R.E.M.A. who may join in this new activity are: Copeland, General Electric, Westinghouse and York.



Front row, (left to right): Wyatt Brown, President, Wyatt Brown Co., San Francisco; A. F. Tudry, President, Refrigeration & Power Specialty, San Francisco; Harold Stern, President, Refrigerative Supply Co., Seattle, Wash.; F. H. McLaughlin, Refrigeration & Power Specialty, San Francisco; Jess E. Rauch, Vice President & Engineer, California Refrigerator Co., San Francisco and Oakland; Clarence F. (Sandy) Pratt, President, California Refrigerator Co., San Francisco and Oakland.  
Rear row, (left to right): Robert Hinshaw, President, Hinshaw Supply Co., San Francisco and Sacramento; N. W. Edwards, Refrigeration & Power Specialty, San Francisco; Lem V. Branson, Asst. Engineer, California Refrigerator Co., San Francisco and Oakland; Byron Waters, Pacific Metals Co., San Francisco and Los Angeles; Sterling Smith, Sales Manager, Mills Industries Inc., Chicago, Ill. Photo taken by Lawrence Roth of Los Angeles.

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Individually tested for efficient, economical operation. WP regulating valves may be mounted in any position and will give lasting, trouble-free performance. Brass body, two ply power bellows and corrosion resistant materials for all internal parts. They are designed not only to start and stop the flow of water but also to feed the economic amount of cooling water to secure the proper condensing pressure without waste. The water flow increases and decreases with the rise and fall of actuating pressure.

WP regulating valves are available in  $\frac{3}{4}$ ",  $\frac{1}{2}$ " and  $\frac{3}{8}$ " FPT sizes and other valves of other types are available in sizes ranging from  $\frac{3}{8}$ " to 2" FPT.

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**A POST-WAR DREAM  
THAT WILL COME TRUE FOR  
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**THE NEW "BEN-HUR" Farm & Home Freezer** is no dream—it has been fully proved and tested under every operating condition — ready to open a tremendous sales and profit opportunity for you. Market research shows that the post-war home freezer demand will require over 500,000 units a year!

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FARM & HOME FREEZERS

## SUPERIOR VALVE ADVANCES NEWCUM AND SIEGFRIED

COINCIDENT with the observance of Superior Valve & Fittings Co., Pittsburgh, Pa., seventh anniversary of the founding of the organization, President J. S. Forbes announced two personnel changes.

Kenneth M. Newcum, vice-president of the company, assumes increased responsibilities in charge of engineering, development, and quality control. Willis A. Siegfried, who served as Mr. Newcum's assistant in sales work, becomes sales manager and will be responsible for the sales policies and advertising.

Mr. Forbes, in making the announcement, said the changes were being made with confidence in Mr. Newcum's abilities, backed by his many years' experience in the refrigeration sales and service field.

\*\*\*

## LOGAN RESIGNS FROM SUPERIOR

CHARLES R. LOGAN, in charge of the Eastern office of Superior Valves & Fittings, Pittsburgh, Pa., for more than six years, has resigned his position effective May 15th. Mr.



CHARLES R. LOGAN

Logan enjoys a wide acquaintanceship in the refrigeration industry, and served as president of the American Society of Refrigerating Engineers during 1944. No announcement of his future activities has been made.



W. A. SIEGFRIED



Louis Ruthenburg, (right) president of Servel, Inc., Evansville, Ind., was guest speaker April 8 on "Your America" when the Union Pacific railroad's coast-to-coast Mutual network program saluted the refrigeration industry. Here he looks over his script with Lyle DeMoss, producer of the show, which each week emanates from Omaha, Neb., where headquarters of the railroad are located.

\*\*\*

## CHICAGO TECUMSEH OFFICE IN NEW LOCATION

MARC A. SHANTZ, representing Tecumseh Products Co., Tecumseh, Mich., manufacturers of Chieftain compressors, has moved his office to 308 W. Washington Blvd., Chicago 6. In announcing the move, Mr. Shantz said "the new expanded facilities provide a better opportunity of serving customers, especially in anticipation of post-war production."

\*\*\*



J. MANSURE, (left) proprietor of United Appliance Service at 1753 W. 63rd Street, Chicago, listens intently as Harry Alter, (right) Chicago Crosley wholesaler, presents him with the 1945 Crosley Franchise and explains its details to him.

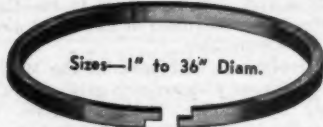
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THROUGH  
THE  
YEARS..

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## JOE MOORE JOINS ANSUL

JOE MOORE, who claims no kinship to his famous baseball namesake, joined the Ansul Chemical Company, Marinette, Wis., March 1. He is located at the firm's district office at Indianapolis where he is working with Tom Plouff, District Office Manager, in the sale of Ansul Refrigerants.

Born in Hopkinsville, Ky., Joe moved with his parents to Evansville, Ind., at an early age where he received his early education and grew to manhood. His first work was with a number of industrial concerns in that city and his last connection was with a refrigeration company as Branch Manager in lower Michigan.



JOE MOORE

\*\*\*

## KEROTEST APPOINTS JONES DISTRICT MANAGER

AUSTIN JONES, formerly Research and Development Engineer of the Kerotest Manufacturing Company, Pittsburgh, Pa., manufacturer of valves and fittings, has been named Toledo District Manager with headquarters at 1743 West Central Avenue, Toledo 6, Ohio.

Mr. Jones will supervise Kerotest sales in the Ohio, Michigan, Eastern Indiana and Central Kentucky areas.



AUSTIN JONES

\*\*\*

## GENERAL ELECTRIC APPOINTMENTS

TWO appointments in General Electric's Industrial Divisions name J. J. Huether assistant manager of the Industrial Divisions, and W. A. Wirene manager of the Industrial Materials Division, Industrial Divisions. Mr. Huether had been manager of the Industrial Materials Division for eight years, with Mr. Wirene as assistant manager since 1942.

## KEROTEST AWARDED FIFTH STAR

KEROTEST Manufacturing Company, of Pittsburgh, Pa., is one of the fortunate companies to receive the fifth and final gold star for its Maritime "M" Pennant in recognition of continuous outstanding production of essential valves and fittings for the U. S. Maritime Commission.

According to Admiral H. L. Vickery, vice chairman of the Commission, this recognition concludes all "M" awards for the duration, as the department is now being discontinued. Only a very few companies in the United States were recognized in these final awards by the Commission.

Kerotest was first awarded the Maritime "M" Pennant with a single gold star in August, 1942. Five additional stars were awarded during 1943 and 1944 and the pennant now will carry six stars.

\*\*\*

## WESTINGHOUSE CHANGES NAME

STOCKHOLDERS of the Westinghouse Electric and Manufacturing Company at their recent annual meeting voted to split the company's stock on the basis of four shares for one and also to change the company's name to Westinghouse Electric Corporation, for simplicity and brevity.

Purpose of the stock split, explained A. W. Robertson, chairman of the company, is to broaden the base of Westinghouse ownership by making the stock available at a lower price.

Authorized capital stock of the company today is 4,000,000 shares, consisting of 80,000 shares of preferred and 3,920,000 shares of common, of which 79,974 shares of preferred and 3,182,816 shares of common are outstanding, all with a par value of \$50.00.

\*\*\*

## THERMAL COMPANY OPENS BRANCHES

THE Thermal Co., 2410 University Ave., St. Paul 4, Minn., refrigeration jobber, has recently acquired the entire stock of Janda Refrigeration Supply, Cedar Rapids, Iowa, and has opened a branch store at 503 —4th Ave., S. E. Cal H. Moser, formerly with Janda, becomes manager of the Cedar Rapids branch.

Further expansion of Thermal activities includes the opening of another branch store at 3036—1st Ave., S., Great Falls, Mont., about June 1, with Al D. Forbes as manager. Mr. Forbes was formerly with Starter & Battery, Inc., of Great Falls.



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## KELVINATOR STAFF MEMBERS TO HANDLE REGIONAL TERRITORIES

**S**TILL engaged in war work, three important staff members have been designated to handle Kelvinator's three huge regional territories in its national postwar sales activities, Charles T. Lawson, vice-president in charge of Kelvinator Division Sales, said.



S. R. SELLERS H. C. PATTERSON C. J. BACHMAN

"We intend to continue, into the postwar period, the streamlining program successfully undertaken by Kelvinator in 1940, when the distribution operation was tightened all along the line," Lawson said, recalling that Kelvinator at that time sharply reduced prices, trimmed its model line, concentrated its output in the hands of selected retailers, and more than tripled its sales.

"There will be no basic change in these policies, which were reaching their fullest effectiveness when the war ended domestic activities," he added, "except that they will be applied more vigorously to our own distribution organization. Just as the best retailers were selected on their market areas, greater responsibilities will be placed in the hands of men best qualified to do the big postwar jobs."

The country has been sliced into three wide territories—east, west and Pacific, assigned respectively to S. R. Sellers, H. C. Patterson and C. J. Bachman. Their activities will come immediately under T. A. Farrell, assistant general sales manager in charge of the operations division.

\*\*\*

## BROOKLYN BRANCH OPENED

**T**HE opening of the Brooklyn branch at 208 Flatbush Ave. is announced by Melchior, Armstrong, Dessau Co., Inc., of Ridgefield, N. J., where a stock of refrigeration, air conditioning and heating supplies will be carried. The new branch was opened April 2. An invitation is extended to members of the trade to come in and visit this new branch, particularly if the company can be of any assistance in connection with refrigeration or heating problems.

## AIR CONDITIONING DEPARTMENT ADDED BY G.E.

**E**STABLISHMENT of the air conditioning department as one of the six major operating departments of the General Electric Company has been announced by C. E. Wilson, president of the company. Operations pertaining to heating, air conditioning, and commercial refrigeration have previously been the responsibility of the company's appliance and merchandise department. The new department will have its headquarters at Bloomfield, N. J., and George R. Prout has been designated as general manager.

The new department, according to Mr. Wilson, will select and utilize appropriate marketing channels and methods for all of its products except air conditioning for rail transportation, which remains a responsibility of the transportation divisions of the company. Sales divisions of the new department are as follows:

The industrial, marine, and contractor equipment division (including refrigerant condensing units and compressors, naval and marine systems, self-contained air conditioners, central plant air conditioners, conditioned air cooling units finned coil surface and heat transfer assemblies, and evaporative condensers and coolers); the packaged cooling equipment division (including water coolers, room coolers, room air conditioners, window-mounted room coolers, beverage coolers, commercial food storage cabinets, refrigerated merchandisers and dispensers, and frozen food cabinets in large sizes); and the automatic heating equipment division, which is responsible for domestic heating equipment.

\*\*\*

## MILLER NEW PRESIDENT

**MARION E. ("DUSTY") MILLER** is the newly elected President of the Electric Power Equipment Corporation, Philadelphia, Pa., whose company has completed plans to manufacture a complete line of commercial refrigeration products through conversion of its entire South Philadelphia plant.

A note on this was published in the April issue.



MARION E. MILLER

THE REFRIGERATION

# F L O C K E C K

- *New Type Control Fits All Makes and Sizes of Water Valves. Starts and stops water flow to condenser immediately when switch starts or stops compressor. Good bye to water dripping, water waste and water valve seatwear. Write for bulletin.*

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**Cold Controls • Pressure Switches**

One year guarantee  
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Original Factory Specifications

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## CONTROL REPAIR SERVICE

Domestic Controls reconditioned equal to new at a small cost. All work guaranteed for one year. Prices upon request.

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**ZEROVAULT**  
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## SERVICE MEN—

### ADDED PROFITS ARE POSSIBLE

Eliminate the lost time from service calls by using our repair service on compressors. We specialize in prompt efficient workmanship on your compressor repairs. 90 day guarantee—Reasonable prices.

We do not repair Hermetic units.

Write for quotations to

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## COOLING and FREEZING UNITS

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● **ZEROVAULT** has a significant place in our post-war stepped-up production schedule of low-temperature equipment.

● Sectional in construction, **ZEROVAULT** is easily erected in otherwise inaccessible places . . . is easily enlarged to care for expansion of frozen food distribution facilities. Get full details **NOW** . . . Write Dept. 14.

**WILSON CABINET COMPANY**

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DELAWARE

## G.E. APPLIANCE DISTRIBUTION

**C.** R. PRITCHARD, general sales manager of General Electric's appliance and merchandise department, states that G.E.'s policy of distributing both major and traffic appliances postwar will be fundamentally identical to its prewar policy.

The department has 60 wholesale major appliance distributing outlets for G-E refrigerators, ranges, water heaters, home laundry equipment, dishwashers, Disposalls, electric sinks and kitchen cabinets. These distributors, operating in assigned trading areas, will maintain sales organizations and local warehouse stocks at over 125 points, and will be prepared to serve the retail dealers in every city and town in the United States, Hawaii and Alaska.

Better than 50 per cent of the distributing outlets will be independent wholesalers, many of whom have been with G.E. since the General Electric refrigerator was first announced in 1927. While there have been some divisions of large territories and appointments in smaller markets, G.E. will have about the same number of independent distributors as it had before the war.

General Electric will operate its own major appliance wholesale distributing branches in nine major markets. Seven of them, located in New York, Newark, Cincinnati, St. Louis, Pittsburgh, Los Angeles and Philadelphia, are new. They were added to the two branches which G.E. operated before the war. The G.E. Supply Corporation will continue as a wholesale distributor of the major appliances in about the same number of markets as before the war.

The company's traffic appliances, as in the prewar years, will be distributed through multiple wholesale outlets in order to reach all types of retailers. The electrical dealer, department store, furniture store, utility outlets, jewelry, drug and hardware retailers will be served by the same type of distributing organizations that supplied them in the prewar years.

\*\*\*

## MAYFLOWER CATALOG

**A** NEW catalog has been issued by Mayflower Products, Inc., Richmond, Ind., illustrating and describing the Mayflower commercial compressors and air conditioners. Two tables show complete specification. A revised parts and price list accompanies each catalog.

## NEW OFFICERS FOR TEMPRITE

**T**HE Board of Directors of Temprite Products Corporation, Detroit, announces the addition of one new member and the promotion of another within its executive ranks.

Lud Emde, 15 years with Worthington Pump and Machinery Corporation and Detroit district manager of that company since 1938, becomes vice president, general manager and a director of Temprite succeeding the late John Wyllie, Jr., and P. Fred Lesley, a board member and secretary and treasurer of Temprite, becomes assistant general manager in direct charge of production, purchasing and finance.



LUD EMDE



P. FRED LESLEY

Mr. Emde is a graduate of the University of Michigan Engineering School and is a member of the Engineering Society of Detroit and the Michigan Engineering Society.

Mr. Lesley, born in Schenectady, N. Y., but a resident of Detroit for 28 years, was graduated from the Detroit Institute of Technology in 1923 and has served as secretary and treasurer of Temprite since 1932, having helped to organize the company (then known as Liquid Cooler Corporation) in 1929. He is a member of the A.S.R.E., the Detroit Board of Commerce, the Michigan Manufacturers Association, and is active in numerous civic, fraternal and sportsmen's organizations.

The company, now engaged almost entirely on war work, manufactures water and beverage cooling equipment, refrigeration accessory items and temperature-controlled photographic and X-ray film and print processing equipment.

\*\*\*

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# Parts and Supplies for all Applications

When you need some of the less frequently used items, you will find our stock is maintained on these as well as the popular sellers. Get into the habit of asking for your requirements to repair or install that special job.

Catalogs are again available

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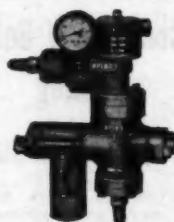
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Regulator and Stop Valve

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AUTOMATIC BACK  
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**Going back into Service Work**

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**ATTENTION MANUFACTURERS**—Canadian member Refrigeration Service Engineers Society with good business background and sales ability wishes to become Jobber, Distributor or Manufacturer's Agent for a well established firm. Good connections and able to manage business efficiently. Part time as now fully employed; this ad is in compliance to National Selective Service regulations. Address Box MY-1, THE REFRIGERATION SERVICE ENGINEER, 433 N. Waller Ave., Chicago 44, Ill.

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